
Expertise

Renewable Energy System 、 Digital Power 、 Power Management 、 Laser Driven System 、 Mechatronics

Education

- Ph. D, Department of Electrical, Computer and Energy Engineering** May. 2010
University of Colorado, Boulder, CO (adviser: *Dragan Maksimovic*)
(Thesis title: Digital Control Techniques for Efficiency Improvements in Single-Phase Boost Power Factor Correction Rectifiers)
- M. S. degree, Department of Electrical & Computer Engineering** Dec. 2003
State University of New York at Stony Brook, Stony Brook, NY
- B. S. degree, Department of Mechanical Engineering** Jun. 1999
National Taiwan Ocean University, Keelung, Taiwan

Working Experience

- Assistant Professor, National Kaohsiung Univ. of Science and Technology , Kaohsiung** Feb. 2018–
 - Teaching in power converter related courses.
 - Research on power electronics related field.
 - Operating of Power Management and System Control Lab.
- Assistant Professor, National Kaohsiung Univ. of Applied Sciences , Kaohsiung** Aug. 2016–Jan. 2018
 - Operating of Power Management and System Control Lab.
- Associate Director, Southern Taiwan Teaching/Learning Resource Center , Kaohsiung** Jan. 2017–Feb. 2018
 - Planning and coordinating administrative events.
- Engineer, Industrial Technology Research Institute, Tainan** Mar. 2013–Jul. 2016
 - Development of driver circuits for high power laser source.
 - Design temperature regulation circuits / system design.
 - Measurement automation for industrial applications.
- Control Engineer, Taiwan Power Company, Taichung** Nov. 2012–Mar. 2013
 - Power plant instrument & measurement design document review.
- Engineer/Section Manager, Delta Electronics, Tainan** Sep. 2010–Nov. 2012
 - Management on Japanese product lines (maintained and new products)
 - Multiple strings DC-AC isolated solar inverters.
 - Single/Multiple strings DC-AC non-isolated solar inverter.
- IC Design Intern, Cirrus Logic Inc., Austin, TX (NASDAQ: CRUS)** Sep. 2008–Dec. 2008
 - Development of new current control algorithm based on current error estimator.
 - Top level simulation for AC-DC power factor correction (PFC) controller.
- Research Assistant, Colorado Power Electronics Center (CoPEC), Boulder, CO** May. 2005–Jul. 2010
 - Research on high efficiency digital control algorithm for PFC rectifier over wide load range. (sponsored by **Cirrus Logic Inc.**)
 - Research on controller design for SiC integrated circuit from top level to transistor level. (sponsored by **General Electric**)
- Teaching Assistant, ECEE Dept., University of Colorado, Boulder, CO** Jan. 2008–May. 2008
 - Power Electronics and Photovoltaic Power Systems Laboratory, including PV system, peak power tracker, isolated step-up converter, inverter related lab sections.

Publications

- F. Chen** and D. Maksimovic, “Digital Control for Improved Efficiency and Reduced Harmonic Distortion over Wide Load Range in Boost PFC Rectifiers.” *IEEE Trans. Power Electron.*, vol. 25, no. 10, pp. 2683 – 2692, Oct. 2010.
- F. Chen** and D. Maksimovic, “Digital Control for Improved Efficiency and Reduced Harmonic Distortion over Wide Load Range in Boost PFC Rectifiers.” in *Proc. IEEE Applied Power Electronics Conference and Exposition*, 2009, pp.760-766.

F. Chen and D. Maksimovic, "Digital Control for Improved Efficiency in Interleaved Boost PFC Rectifiers." in *Proc. IEEE Applied Power Electronics Conference and Exposition*, 2010, pp. 188-195.

F. Chen, J. Wang, Y. Song, and F. Ho, "High Efficiency Synchronous Pulse Laser Driver System." in *Proc. IEEE International Future Energy Electronics Conference*, 2017, pp. 1878-1881.

Y. Jhang, **F. Chen** and S. Lin, "LASER PROCESS APPARATUS AND METHOD THEREOF," Taiwan Patent No. I607820.

F. Chen, Y. Song, H. Tsai and C. Chen, "LASER DRIVER MODULE AND CONTROL METHOD THEREOF," Taiwan Patent No. I603556.

F. Chen, F. Ho, C. Yang, Y. Song and Y. Jhang, "CONTROL METHOD FOR SPEEDING UP LIGHT EMITTING OF LASER DIODE," Taiwan Patent No. I575829.

范揚典、陳附仁,"比較器實現之數位功率因數校正整流器"第40屆中華民國電力工程研討會暨第16屆台灣電力電子研討會, 2019.

Teaching / Courses

Power Electronics	Fall 2019
Electrical Machinery Lab	Fall 2019
Power Electronics Analysis and Practice	Spring 2019
Solid State Motor Drive	Spring 2019
Electrical Machines	Spring 2019
Power Electronics	Fall 2018
Electrical Machinery Lab	Fall 2018
Solid-State Power Converter	Fall 2018
Solid State Motor Drive	Spring 2018
Power Electronics Analysis and Practice	Spring 2018
Electrical Machines	Spring 2018
Electrical Machines II	Fall 2017
Electrical Machines I	Spring 2017
Power Electronics Lab	Spring 2017
Solid-State Power Supplier	Fall 2016
Solid-State Power Converter	Fall 2016

Services / Activities

Reviewer, <i>IEEE transaction on power electronics</i> .	2008-
Reviewer, <i>IEEE transaction on industrial electronics</i> .	2010-
Reviewer, <i>IEEE transaction on circuits and system II</i> .	2011-
Reviewer, <i>IEEE Transactions on Industry Applications</i> .	2017
Reviewer, <i>Applied power electronics conference and export</i> .	2008-2012
Reviewer, <i>International Future Energy Electronics Conference</i> .	2016
Addresser, "My Experience on National/Private Companies", National Formosa University.	2014
Addresser, "Digital Power Design Flow", National Formosa University.	2015
Addresser, "Drivers/Control Circuits of Fiber Lasers ", National Yunlin University of Science and Technology University	2016

Research / Development Projects

Single-Voltage-Sensor Maximum Power Point Tracker on Grid-Tied Cascade Photovoltaic System, NKUST, Kaohsiung, Taiwan	2019-
Electrical Vehicle Integration Courses Program - New Engineering Education Method Experiment & Construction, NKUST, Kaohsiung, Taiwan	2019-
Electrical Vehicle Professional Learning Communities, NKUST, Kaohsiung, Taiwan	2019
Comparator Based Digitally Power Factor Correction Rectifier, NKUST, Kaohsiung, Taiwan	2018-2019
Green Laser Driver Circuits in MOPA Pulsed Laser (II), KUAS, Kaohsiung, Taiwan	2017-2018
Green Laser Driver Circuits in MOPA Pulsed Laser, KUAS, Kaohsiung, Taiwan	2016-2017
Detection of Surface Composition Using Laser Enhanced Surface Optical Properties, ITRI, Taiwan	2016-2017
Automotive Electronics Testing Automation System, ITRI, Tainan, Taiwan	2015-2016

Continuous-Wave Laser (500W), ITRI, Tainan, Taiwan	2015-2016
TEC Temperature Regulation Panel, ITRI, Tainan, Taiwan	2014-2015
Nano-Second Pulsed Laser (20W/30W/50W), ITRI, Tainan, Taiwan	2013-2015
Bearing Ball Surface Imperfection Measurement, ITRI, Tainan, Taiwan	2013-2014
DC/AC LED Junction Temperature Measurement, ITRI, Tainan, Taiwan	2013-2014
Multiple-String Grid-Tied Non-Isolated Solar Inverter (JH-40/35CB2), Delta , Tainan, Taiwan	2011-2012
Grid-Tied Non-Isolated Solar Inverter (TL-4k), Delta, Tainan, Taiwan	2011-2012
Multiple-String Grid-Tied Isolated Solar Inverter (JH-M0B2), Delta, Tainan, Taiwan	2010-2011
Digital Control for Power Factor Correction Rectifier, CoPEC, Boulder, CO	2007-2010
Planar Integrated Power Processing, CoPEC, Boulder, CO	2005-2007
Real-Time Operated DSP, Digital Signal Processing Lab, SUNY-SB, NY	2002-2003
Tendon Driven Manipulator, Servo-Mechanical Lab, NTOU, Taiwan	1999

Skills

Software	<ul style="list-style-type: none"> · Programming Languages: VerilogHDL, VerilogAMS, C/C#, MATLAB/Simulink, Scilab. · Circuits Applications: Cadence/OCEAN, OrCAD/Layout, DXP, SPICE/Spectrum, PSIM.
Firmware	<ul style="list-style-type: none"> · FPGA programming (Xilinx/Altera). · MCU/DSP programming. (Microchip/TI).