Sun, Jingdong

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EDUCATION

Missouri University of Science & Technology (Missouri S&T) *Aug. 2016-June. 2020*
Ph.D in Electrical Engineering GPA: 4.0/4.0

Missouri University of Science & Technology (Missouri S&T) *Aug. 2014-May. 2016*
M.S. in Electrical Engineering GPA: 4.0/4.0

Huazhong University of Science & Technology (HUST) *Sept. 2010-Jun. 2014*
B.S. in Electronic Information and Communications (Honors Program) GPA: 3.7/4.0

HORNORS AND AWARDS

IEEE EMC Society Best Student EMC Hardware Design Award *Mar. 2015*
First Author. Granted by IEEE Electromagnetic Compatibility Society.

Exceptional Performance in the International EM Proficiency Test *Oct. 2014*
Top 4% among 265 exam takers from Japan, HK, Korea, Taiwan, and U.S.

Graduate Research Assistant Scholarship *Sept. 2014*
Full research scholarship granted by EMC Laboratory, Missouri S&T.

National Prize in Mathematical Modeling Contest CUMCM *Sept. 2012*
Top 5% among all the participants from China, Singapore, and U.S.

WORKING EXPERIENCES

Tesla, Inc. *June 2020-Present*
Sr. Electrical Design Engineer, Autopilot *Palo Alto, U.S.*

· Signal and power integrity design, modeling, and validation.

Google LLC *Jan. 2019-July. 2019*
Hardware Intern, Pixel Phone SIPI Team *Mountain View, U.S.*

· End-to-end power distribution network (PDN) modeling for mobile platforms.
· Debugging on the USB charging desense issue.
· Conducted various RFI/PDN measurements, including micro-probing and near-field scanning.

ConvenientPower Systems (CPS), Wireless Charging Solutions. *Apr. 2017-Aug. 2018*
Manager, RX System Group *Chengdu, China*

· Provided IC-based wireless power receiver solutions for mobile phones & accessories.
· Developed the world's 1st wireless charging solution for earpods (Meizu POP) with Qi certification.
· Integrated the 1st 10W fast wireless charging function to mobile phone (Gionee M7P) in China.

H3C Technologies Co., Ltd. *May. 2011-Jan. 2013*
Software Engineer (Part-Time) *Wuhan, China*

· Software development (C/C++) in user space and kernel for Linux-based router system.
· Using the CMM methodology, completed HLD and UT cases. Deployed GTest environment.
· Implemented the network quality analyzer based on C for the H3C Comware V7 platform.

ACADEMIC PROJECTS

Modeling on Wireless Power Transfer (WPT) Systems

- Developed accurate rectifier characterization method and improved system-level model.
- Proposed pre-design and post-design design methodology to optimize coils and system.
- Built Qi and A4WP standards compatible WPT prototypes. Demos at CES, Las Vegas, in 2016.

Modeling on Power Distribution Network (PDN)

- Developed a novel pattern-based analytical method for PCB-level PDN impedance calculations.
- Developed a topology-based accurate VRM model to optimize PDN low frequency responses.

Simulation of HPM / ESD Effects on Semiconductor Device

- Analyzed the device physics of failures caused by HPM / ESD injections.
- Predicted the upset events in a particle-level perspective using Monte Carlo method.

Automated Channel Emulator Based on MEMS Switch

- Designed multiple transmission line channels with good signal integrity performance.
- Integrated MEMS switch for channel selection, under the control of an embedded system.
- Implemented the automated control logic using Python script.

Heat Sink / IC Radiation Field Transformation

- Constructed an equivalent field source by the near-field scanning technique.
- Developed and validated a far-field transformation procedure for the heat sink / IC structure.

Wireless Smoke Detection Based on Structure Similarity of Video

- Designed the smoke detection algorithm using structure similarity of video frames.
- Implemented the hardware and software of the WiFi-UART module to transmit smoke alarm.

Open-Source Mirror Site Development

- Built the 1st and largest open-source mirror site in Central China.
- Completed the rsync synchronizing script (bash), the status updating script (Perl), and the front-end web page (HTML/PHP/Javascript).

RESEARCH

Areas of Interests: signal & power integrity, wireless power transfer, device modeling.

Publications: 12 peer-reviewed journals and conference papers, published in IEEE Transactions on Power Electronics and IEEE Transactions on Electromagnetic Compatibility. 6 US patents.

Presentations: 2 talks and 4 posters on CEMC IAB Meeting in 2014, 2016, and 2019.

SKILLS

Hardware
SIPI, RF and power delivery system design, schematic, PCB layout, bring-up and testing

Measurement
Oscilloscope, VNA, SA, TDR
Near-field scanning, micro-probing

Software
C/C++, Matlab, Perl, Python, JMP,
Latex, Javascript, HTML/CSS, TCL/Tk

Simulation
RF simulation: HFSS, CST, EMC Studio
Circuit simulation: ADS, HSPICE, PowerSI