Sun, Jingdong

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PROFESSIONAL EXPERIENCE

Tesla *06/2020 - Present*
Staff Electronic Design Engineer, Autopilot Team *Palo Alto, CA*

· Signal/power integrity design and validation for next-generation Dojo/Autopilot hardware.
· Lead voltage regulator module (VRM) spec, optimization and DFMEA for Dojo training tile.
· Hardware management and data analysis for end-of-line (EOL) testing in manufacturing process.
· High-speed channel full-wave simulations (Ansys HFSS) and micro-probing measurements.
· Design, draw schematic (Cadence), and guide PCB layout for interposer & tester boards.
· Established auto-testing platform, including power supply/oscilloscope/E-load/load slammer.
· Component characterization, including SerDes IP, VRM, PCB material, capacitor, etc.

Google *01/2019 - 07/2019*
Hardware Intern, Pixel Phone SIPI Team *Mountain View, CA*

· End-to-end power distribution network (PDN) modeling for mobile platforms.
· Investigated and mitigated USB charging desense issue.
· Conducted RFI/PDN measurements, near-field scanning, and PDN impedance characterization.

ConvenientPower Systems (Wireless charging solutions) *05/2017 - 07/2018*
Manager, RX System Team *Chengdu, China*

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

H3C Technologies *05/2011 - 01/2013*
Software Engineer (Part-time) *Wuhan, China*

· Software development (C/C++) in user-space and kernel of Linux-based router system.
· Completed HLD and UT cases, deployed GTest environment using CMM methodology.
· Launched network quality analyzers for the H3C Comware V7 platform.

EDUCATION

Missouri University of Science & Technology (Missouri S&T) *08/2014 - 05/2020*
Ph.D. and M.S. in Electrical Engineering

Huazhong University of Science & Technology (HUST) *09/2010 - 06/2014*
B.S. in Electronic Information and Communications (Honors Program)

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

HONORS & AWARDS

IEEE EMC Society Best EMC Hardware Design Award *2015*
First Author, awarded by IEEE Electromagnetic Compatibility Society.

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

Graduate Research Assistant Scholarship *2014 - 2020*
Full research scholarship funded by EMC Laboratory, Missouri S&T.

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

RESEARCH EXPERIENCE

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 2016 CES, Las Vegas).

Modeling on Power Distribution Network (PDN)
· Developed a novel pattern-based analytical method for PCB-level PDN impedance calculations.
· Established 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 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 (Python).

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

Open-Source Mirror Site Development
· Built the first and largest open-source mirror site in Central China.
· Established rsync synchronizing scripts (bash), status updating scripts (Perl), and front-end web pages (HTML/CSS/Javascript).

PUBLICATIONS

Articles: 15 peer-reviewed journal and conference papers, including *IEEE Transactions on Power Electronics* and *IEEE Transactions on Electromagnetic Compatibility*.

Patents: 7 US patents.

Presentations: 2 talks and 4 posters at CEMC IAB Meetings in 2014, 2016, and 2019.