Don Chu

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SUMMARY

- Architected/designed/developed various smart IOT product reference designs (smart thermostat, smart dimmer, smart valve, …), delivered whole package, including hardware/firmware/software
- Extensive customer support experience for semiconductor products like PMIC, solid state relay, backlighting, MCU, etc.
- Expert board level circuit hardware engineer, developed evaluation boards to showcase best performance of various power management ICs (buck converter, boost converter, buck-boost converter, …)
- PCB design of high speed/mixed signal circuitry using tools including Altium, Cadence allegro, etc.,
- Characterization of high speed circuitry through tools like jitter/phase analyzer, eye diagram, etc.
- Isolated Line (220VAC/110VAC) and low voltage (24VAC, 16VAC, …) AC switching circuit in lighting and HVAC application
- Microcontroller/DSP hardware design; embedded software/firmware development, low power IOT design employing ARM Cortex M0/M3/M4, Atmel AVR 8bit MCU, and Lora/BLE/low power Wi-Fi etc. FreeRTOS, FPGA/CPLD logic design, embedded design utilizing platforms like Raspberry Pi/Arduino, Embedded Linux experience utilizing Raspberry Pi and Beagleboard,
- BLE (Bluetooth Low Energy) development using NordicSemi NRF52x
- GUI software development via Qt framework by PyQt/PySide, C/C++/C#; Script (Python, …) programming; Test/Instrumentation suite automation
- Intensive hands-on experience of mixed-signal/analog IC bring-up, debugging, validation, characterization, and test automation of various PMIC, USB, Audio, PLL, RTC, Backlighting, Solid State Relay, etc.
- Solid multidisciplinary background: microelectronics, optoelectronics, fiber optics, optical network, signal processing, mechanics, etc.
- Invented and hold patent of a pure fiber optic accelerometer for seismic engineering
- Familiar with various lab equipment and test tools, including high speed oscilloscope, digitizer, source meter, power supply, signal/jitter analyzer, time interval analyzer, spectrum/network analyzer, logic analyzer, audio precision, temperature oven/controller, etc, and their control programming and automation, GPIB/VISA/SCPI programming
- Labview/LabWindows, test automation
- Data analysis using tools like Matlab, Spotfire, Excel

EDUCATION

- Ph.D. & MS, Engineering, University of California, Irvine, CA 1995 - 1999
- BS, Scientific Instrumentation, Zhejiang University, PR China, 1990

EXPERIENCE

Polte Inc. **08/2019 – 02/2020**

Senior Engineer

- Developed various test tools on Raspberry Pi/Linux/Android/Windows/MacOS for Polte's LTE positioning technology

Semtech Inc. **06/2015 – 06/2019**

Senior Application Engineer

- Customer support contact window for Semtech's product families of Neo-ISO, backlighting, power management ICs, etc.
- Embedded firmware/software development on 32bit MCU like ARM cortex M0/M3/M4 (STM32, ATMEL SAMD, …) and 8bit MCU like ATTiny.
- Embedded firmware/software development involving FreeRTOS
- Architected/designed/developed a number of smart IOT product reference designs (smart thermostat, smart dimmer, smart valve, …), from all aspects, including hardware/firmware/software
- Application support Semtech's PMIC, Neo-ISO, Lora, RTC, Backlighting, power harvesting product family, developed complete evaluation solutions including hardware, firmware GUI software and test automation for them,
- Designed Lora IOT node using Semtech's power harvesting technology, hardware and firmware
- Reference design of smart thermostat, smart dimmer, utilizing Lora/lower power Wi-Fi, power harvesting, isolated solid state relay AC switching for line (220Vac/110Vac) and low voltage (24VAC/16VAC) AC circuit

Mixed Signal Automotive, HVAL, Texas Instruments, Dallas, TX **03/2014 – 06/2015**

Senior Validation Engineer

- Developed complete validation platform for BU's various PMICs, including evaluation board, firmware and GUI software

- Validated TI's key functional safety PMIC with wide range (~2V to ~40V) for automotive power steering application, like safe pathing, watchdog, steering angle monitoring, lower power wakeup, characterized all the rails' performance, buck-boost efficiency, transient, LDO PSRR, validated its functional safety critical features, etc.
- Customer support for major automotive module vendors like Thyssenkrupp, Continental, Bosch.

IPG, HVAL, Texas Instruments, Dallas, TX **06/2012 – 03/2014**
Senior Application Engineer
- Key customer/application support and test/characterization for main PMIC and sub-PMIC, for customers including Nvidia, Intel, Microsoft, Samsung, Lab126, Huawei, ZTE, XiaoMi, Yulong, Asus, HTC, Acer, Google, Oracle, etc.

MIS, HVAL, Texas Instruments, Dallas, TX **07/2007 – 06/2012**
Senior Application Engineer
- Key application/customer support and test/characterization for a number of big ticket mixed signal cell phone/data card companion chips, for customers like Apple, Intel, Nokia, Motorola, Samsung, Apple, Huawei, ZTE, etc.
- Intensive application/test/characterization knowledge of Power Management (switcher, charger, etc.), USB, Audio Codec, Clocking, etc.
- Developed OMAP + embedded Linux based application board for USB2.0 PHY+switch IC
- Reference EVM design for various PMIC, USB PHY, switch, etc.
- Mixed signal IC design and simulation

WTBU, Texas Instruments, Dallas, TX **06/2004 – 04/2007**
Senior Test and Characterization Engineer
- Project lead for a number of mixed signal cell phone companion chip test/characterization
- Design high speed PCB evaluation board for characterization of digital PLL up to 2.5GHz
- Defined DPLL test plan, designed automated jitter test platform for it, including hardware and software
- Defined ABB (audio base band) test plans for a number of mixed signal cellular phone companion chips, including TritonEC, Tejas, Han, etc, designed automated test system for them, including hardware and software, executed their SCM tests
- Pioneered TDL engine concept for WTBU ACE group
- Developed general circuit for PSRR measurement across ACE group of WTBU

Barcelona Design Inc., Newark, CA **06/2000– 06/2004**
Senior Test Engineer
- Test/measurement methodology, algorithm and automated system development for Barcelona Design's analog IC/IP's, including PLL, ADC etc.
- Designed/developed ADC evaluation/measurement kit with very lost cost, including evaluation board, software, etc.
- Designed PLL evaluation board, and developed PLL test automation system
- Silicon bring-up, debugging, verification and testing
- Lab management, Test equipment specification and prosecution

University of California, Irvine, Irvine, CA **08/1999 – 06/2000**
Research Associate
- Prototyping patented fiber optic sensor and related research
- Innovative fiber optic sensors for seismic engineering (US patent), Fiber Optic Accelerator R/D

R&D Center, Tokyo Electric Power Company, Japan **04/1996 – 09/1996**
Research Associate
- Research and development of fiber optic sensors for vibration and seismic engineering applications with industry's top-notch experts

Qishuyan Technology Institute of Locomotive & Rolling Stock, Railway Ministry of China **08/1990 – 02/1995**
Mechanical Engineer
- Design and development of automated thermal couple calibration system and management software (Involved both hardware and software development, hardware part includes interfacing ultra-low-resistance switch with GBIP, PC plug-in card design, software is developed in C)
- Precise measurement of mechanical parts, Remodeling and improving of precise measurement instruments
- Portable monitoring/diagnosing system for rotary machinery (Battery powered microcontroller embedded instrument, including low power circuit design, 8051, digital/analog circuit, programmable amplifier, filter

PATENT
- Multiplexable Optical Fiber Displacement, Strain, Acceleration and Pressure Sensors and Method of Operating the Same, US Patent Number: US5969342