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Employment

BMC Firmware Engineer
Aug. 2019 - Now

Quanta Computer Incorporated

- Porting BMC source code to a new platform (uboot, Linux kernel, user space daemon).
- Developing on AMI code base (IPMI, RAID, SAS, GPIO), and debugging for root cause analysis.
- Create a clean build code environment by Docker, and decreased build code time by 60%.

Founder & Senior Software Engineer
Mar. 2013 - May 2019

Dorebo Co., Ltd. (Startup)

- Conceived a B2B2C E-Commerce cloud integration system to solve the management problems for design brands of stationery and gift products. Enhanced 92.4% of processing efficiency through the system-optimized steps of stock, tallying, and packaging.
  - Developed full software stack. Including web services on AWS using Ruby on Rails, internal tools using Docker, and built CI systems by CircleCI and Bitbucket Pipelines.
  - Refactored large legacy system (Clojure) into reusable and easily maintainable architecture (Ruby on Rails).
  - Developed POS application for retailer on iPad.
- Managed and scaled operations, including establishing the business models, goals, and organization.
- Initiated and led a well-functioning team of 4 people (2 engineers, 1 designer, 1 assistant) is more streamlined than 9-12 people required by the industry.
- 100+ business partners from Taiwan and Japan, more than 300,000 visitors and 10,000 active members, and stayed the growth rate of scale per year exceeding 150%. Gained 4.9 stars of satisfaction review from worldwide.

Technical Consultant
Mar. 2013 - Oct. 2013

International Games System Co., Ltd. (Contract)

- Designed the architecture of RTOS prototype for embedded machine, used as an evaluation material of whether to replace the legacy OS.
  - Multicore CPU support (ARM).
  - Soft real time with priority inheritance protocol, and devised the API (system call).
- Estimated the size and complexity required, to provide guidance and advice to software manager.

Software Engineer (Embedded Platform)
Dec. 2009 - Feb. 2013

Garmin Corp.

- Worked with hardware and test engineers under specified budget schedules on embedded platform with high stability and reusability for vehicle satellite navigation devices.
- Porting Linux, including bootloader, Linux kernel, device driver, JNI, Android HAL. Implemented page cache algorithm in filesystem to increase the I/O speed of bootloader.
- Accomplished a reliable multi-threaded program on Android by implementing nearly 10 threads.
- Collaborated with MediaTek Inc. of GPS chip team on improving TTFF (time to first fix) up to 65%.
- Teamed up to develop a new platform in a handheld GPS device with an internal team in Kansas (USA), and served as an internal seminar speaker about the GPS technical details.
- Developed Android USB drivers that need robust enough to support both ADB/MTP function and mass production test (1 PC connects more than 8 devices) via the same USB port.
- Assisted in reviewing the quality of all code in the platform team to minimize the risk of production line downtime.

Education

Master of Engineering - M.Eng.
Jul. 2007 - Sep. 2009

National Chung Cheng University

- **Major:** Computer Science & Information Engineering (Overall GPA: 4.04/4.30, Dept. Rank: 25/99)

- **Thesis**: *PQEMU: A multicore-multicore parallel functional simulator* (Patent Number in USA: US20110093252A1)
  - Corrected the correctness of QEMU's simulation on multicores. For example, a wrong Peterson's algorithm is always correct in binary translation such as QEMU.
  - Increased the simulation efficiency of the QEMU lock instruction on ARM 32 cores up to 20% for Splash2 benchmark, and 800% for an ideal environment by designing a new hash-lock algorithm.
  - Taught x86 assembly and GDB as a teaching assistant (TA).

Bachelor of Engineering - B.E.

Sep. 2003 - Jun. 2007

Da Yeh University

- **Major**: Computer Science & Information Engineering (Overall GPA: 3.30/4.30, Dept. Rank: 1/82)
- **Independent study**: Accomplished an x86 OS on protected mode from scratch by C and assembly language:
  - Bootloader (Less than 510 bytes, all written in assembly language.)
  - Kernel (Process scheduler, ISR, Signal, Lock, System Call, Memory Management in address space 1G / 3G)
  - FAT32 file system (read / write, execute ELF file)
  - Device driver (Timer, Keyboard, Display, Hard disk)
- Developed an x64 operating system (lite version) based on the independent study.
- Managed mass processes on a high-loaded BBS system (over 1,000 concurrent users) of University (Maple BBS).
- Based on the premise above, developed a tweet system and a malicious message recognition system on FreeBSD which were able to avoid race condition while reading or writing files / memory.

Personal Projects

2019 - Attended AWS Summit Taipei and finished the competition for DeepRacer by Reinforcement Learning.

2018 - Contribution for iTerm2 to offer advanced setting for tab bar height

- A baggage management system to encode each box and record index of details, easy to find every item via mobile app and labels on boxes, enable to monitor the progress of the transporters to a new location.

2017 - CUDA simulator for multi-core CPUs

- Constructed a quadcopter drone from scratch without using a special kit.

2016 - ETEN font drawer for Minecraft

- An easy-to-use gandi.net DDNS
- A bootable full system incremental backup tool for Linux / Mac

2015 - Parse.com server implementation from reverse engineering

- Aquarium monitor system with an Arduino board (The *Most Popular Award* at 4th Taiwan Hackathon)

Earlier - Automatic gardening system

- Porting mjpg-streamer to ARM (Pandaboard + Ubuntu 12.04)
- A thread safe queue wrapper (from std::queue)
- An elegant functor design pattern for C++11 based on Loki library
- ARM emulator, support over 20 instructions with condition code
- RC airplane crash notification & alarm system on Openmoko

Skills

Language	**Proficient**: C, C++11, x86 assembly, Ruby, Clojure, JavaScript (ES6)
	Familiar: Bash Shell script, Python
Embedded System	**MCU / SoC**: ARM, 8051, USB chips (Cypress, ATMEL)
	Linux: kernel, device driver, system programming
Database	MongoDB, MySQL
Frameworks & Tools	**Project Management**: JIRA, Confluence, Todoist, Asana
	Version management: Git, Gerrit
	Framework: React, jQuery, Ruby on Rails, C++ STL
Other Skills	OS design and implement (POSIX)
	Multithreading
	Debugging / reverse engineering experience (GDB, SoftICE)
	Datasheet / Schematic reading ability
	Oscilloscope, Multimeter, Logic analyzer, JTAG usage experience
	RC helicopter inverted flight