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# Employment History

## Software Engineer - Linux Kernel Team
**May. 2020 - Now**
**Canonical Ltd.**

- Mastered the development and maintenance of the Ubuntu Linux kernel with a specialization in ARM SoC, proving adeptness in technical innovation and problem-solving.
- Succeeded in delivering superior-quality Linux kernels tailor-made for OEM/custom hardware platforms, illustrating commitment to excellence and client satisfaction.
- Led patch and backport processes from upstream communities, further enriching Ubuntu's offerings by contributing our advancements back to them, thus evidencing leadership and collaboration in the open-source space.
- Proficient in enabling hardware functionalities, displaying expertise in low-level debugging, triaging, and troubleshooting to maintain uninterrupted service.
- Leveraged Agile methodologies in my work processes, demonstrating adaptability and efficiency in fast-paced, evolving environments.
- Excelled in fostering productive relationships with globally distributed teams, showcasing strong cross-cultural communication skills and teamwork.
- Successfully delivered commercial open-source projects "Ubuntu on AMD-Xilinx," illustrating project management skills, technical knowledge, and dedication to open-source initiatives.
  - Demonstrated proficiency in FPGA and SoC platform porting, specifically the Zynq® UltraScale+™ MPSoC architecture, emphasizing adaptability and expertise in tackling challenging assignments.
  - https://ubuntu.com/download/amd-xilinx
- Proudly led the successful delivery of significant commercial open-source project, "Ubuntu on MediaTek," further reinforcing commitment and prowess in managing and executing complex projects.
  - https://git.launchpad.net/~canonical-kernel/ubuntu/+source/linux-mtk/+git/jammy

## BMC Firmware Engineer
**Aug. 2019 - Apr. 2020**
**Quanta Computer Inc.**

- Ported BMC from the Intel platform to a new AMD platform (U-Boot, Linux kernel, userspace daemon) and brought up platforms.
  - Clarified requirements with PM and Sales into deliverables.
  - Backport from AMI code base (IPMI, RAID, SAS, GPIO), and debugged for root cause analysis.
  - Reviewed code and maintained internal documents on Azure.
- Improved team effectiveness
  - Created a clean build code environment by Docker, and decreased build code time by 60%.
  - Established a new DC cycle testing framework to improve the autotest procedure. (Reduced 20% testing time and resolved the issue that may have caused HDD damage).
  - Trained and gave advice to team members about debugging skills and tools.

## Founder & Software Manager
**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 a 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 systems (Clojure) into reusable and easily maintainable architecture (Ruby on Rails).
  - Developed POS application for retailers 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.
- Managed relationships with 100+ business partners from Taiwan and Japan, more than 300,000 visitors, and 10,000 active members, and stayed at 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 the RTOS prototype for an 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 the software manager.

### Software Engineer - Embedded Platform
**Dec. 2009 - Feb. 2013**
**Garmin Corp.**

- Worked with hardware and test engineers under specified budget schedules on embedded platforms with high stability and reusability for vehicle satellite navigation devices.
- Ported Linux, including bootloader, Linux kernel, device driver, JNI, Android HAL. Implemented page cache algorithm in the 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 the 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 to be 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

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### 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 the 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 the 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) and 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) and developed a tweet and malicious message recognition system on FreeBSD to avoid race conditions while reading or writing files/memory.

## Personal Projects

**2020** - Linux kernel configs comparator
- Petalinux environment for installation and usage on Docker
- Stability testing for Linux block device

**2019** - Checksum 32 calculator
- Attended AWS Summit Taipei and finished the competition for DeepRacer by Reinforcement Learning.

**2018** - Contribution for iTerm2 to offer the 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 monitoring of 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

## Core Qualifications

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|---|---|
| **Language** | **Proficient**: C, C++11, x86 assembly, Ruby, Clojure, JavaScript (ES6) |
| | **Familiar**: Bash Shell script, Python |
| **Embedded System** | **MCU / SoC**: ARM (ZynqMP), 8051, USB chips (Cypress, ATMEL) |
| | **Linux**: kernel, device driver, system programming |
| **Database** | MongoDB, MySQL |
| **Frameworks & Tools** | **Project Management**: JIRA, Confluence, Todoist, Asana, Launchpad |
| | **Version management**: Git, Gerrit |
| | **Framework**: React, jQuery, Ruby on Rails, C++ STL |
| **Editor** | Emacs |
| **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 |