Dingchen (David) Zhang

22-56 North Lake Road, Richmond Hill, Ontario L4E 0G5

+1 (416) 856-2312

dingchen.david.zhang@gmail.com

|  |
| --- |
| summary |

* Embedded software engineer with solid backgroud of digital signal processing (DSP) and statistics.
* More than 5 years of software development experience in C/C++ and Python.
* Knowledge of data structure, algorithms and RTOS. Strong analytical, problem-solving and ability to contribute and work effectively in fast-paced, multi-disciplinary environment.
* Actively looking for a software/embedded system engineer position.

|  |
| --- |
| EXPERIENCE |

**Firmware Engineer**, Myant Inc., Toronto *2017.07 – Present*

* Developed & implemented, debugged, and tested the drivers of I2C/SPI based peripherals including ADC, DAC, inertial measurement unit (IMU), digital potentiometer, optical pulse oximeter, biopotential measurement chip, and haptic module for various MCUs.
* Contribution to the design of embedded system architecture and wrote firmware requirements.
* Direct collaboration with data scientists, implemented and optimized embedded DSP algorithms to extract raw metrics for real-time and low-power constraint applications running on FreeRTOS.
* Designed and wrote communication protocols document.
* Designed and developed the Python-based platform on Linux (manjaro) virtual machine to test the functionalities and DSP algorithms of embedded system, implemented multi-threading visualization in PyQt and data storage for feature analysis, developed the scheme for firmware unit test.
* Reviewed the schematics, validated the hardware/firmware prototype design, and bring-up PCB.

**Embedded Software Engineer**, Mircom Group of Companies, Vaughan *2017.01 – 2017.06*

* Development and implementation of features of firmware for a fire alarm control system based on STM32F429 and NXP KW24D microcontrollers, designed the protocols for critical timing and signaling control between master and more than 40 slave nodes.
* Developed and implemented several modules for system Configurator using C++ and Qt.

**Graduate Research & Teaching Assistant**, McMaster University, Hamilton *2013.09 – 2016.06*

* Contribution in design of a bandlimited optical intensity modulated communication system. Design and implementation of the numerical simulation packages using python, C++ and MATLAB, including time/frequency domain analysis (DFT), sampling, modulation, and detection.
* Published 2 top-tier conference papers and 1 high-ranked IEEE journal paper (TComm)

**Software Engineer in Computer Vision (Intern)**, Bocong Information Technology, 2011.01 – 2011.10

* Collaboration and implementation of background algorithms for intelligent video surveillance based on fixed high-resolution digital camera, using C/C++ and OpenCV.
* Code optimization using SIMD (AVX) to improve the processing time of video frame from 80 ms to less than 15 ms.

|  |
| --- |
| EDUCATION |

**Master of Applied Science (MASc)**, McMaster University, Hamilton, GPA 3.93/4.0, *2013 -- 2016*

* Outstanding Thesis Award 2016

**Master of Engineering (MEng)**, Fudan University, Shanghai, China, *2010 -- 2013*

* National Graduate Scholarship 2012 (ranked 2nd/80)

**Bachelor of Engineering (BEng)**, Fudan University, Shanghai, China, *2006 -- 2010*

|  |
| --- |
| Skills |

* **Programming Languages**: C/C++ (strong), Python (strong), MATLAB (strong), Java,
* **Communications Peripharals**: SPI, I2C, UART, USB
* **Networking Protocols**: Bluetooth Low Energy (BLE), Zigbee, TCP/IP, XModem
* **ARM Microcontrollers**: Nordic nRF52, ST STM32F4/F7, NXP KW24D
* **OS & RTOS**: Linux, FreeRTOS
* **Version Control**: Git
* **Database**: SQLite, MySQL

|  |
| --- |
| interests |

hiking, ping-pang, badminton, travel, history.