Duo Han

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Website: https://duohxx.github.io/onlineCV/

QUALIFICATIONS HIGHLIGHTS

- Three years experience with embedded system;
- Familiarity with **C** programming languages (**RTOS**, Linux);
- Understanding of **ARM**, RISC-v processors (**STM32**, C2000);
- Familiarity in **Python** & **machine learning** frameworks (e.g. PyTorch, TensorFlow);
- Development experience with Java and object oriented programming & multi-threaded programming;

INTERNSHIP&WORK EXPERIENCE

Haawking Technology Beijing Co. Ltd., Beijing, China **04/2023 - present**

Embedded R&D Engineer, Software R&D Center

- Developed and trained a Neural Network for Arc Fault Detection, achieving 99% accuracy on HX2000 chips.
- Port the RTOS (UCOSii, LiteOS, PandaOS) to HX2000 series RISCV DSP chips and performed test case adaptation .
- Designed FlashAPI drivers for HX2000 chips, enabling flexible erase, write, DCSM, and ECC error correction functionalities.
- Conducted comprehensive case design, RTL simulation, and chip testing for HX2000 series firmware, peripherals, boot processes, mass production tests, patches, and CMAC encryption algorithms.

TensorChip Technology Beijing Co. Ltd., Beijing, China **08/2020-05/2021**

Embedded Software Engineer (Intern), Group of TinyAI

- Compiled builderoot, and porting bootloader and Linux kernel to RISC-v (ux607) development board;
- Tested and analyzed the performance of AI algorithms that running on the RISC-V chip;
- Participated in Wall`E robot project. Designed a program that allows Wall'E to follow the registered face;
- Reproduced the Boston Dynamic Dog with Raspberry Pi;

HiRain Technologies Co., Ltd. Beijing, China **01/2020-03/2020**

Embedded Software Intern, Department of Civil Radar

- Developing millimeter wave radars, including IWR6843AOP and AWR1642boost millimeter wave sensors;

PROJECT RESEARCH EXPERIENCE

Arc Fault Detection Device based on TinyMaix **10/2023 - 02/2024**

- Generated 40,000 arc signals based on Mayr arc mathematical model using Python as dataset;
- Built a NN with 3 convolutional layers using TensorFlow, achieving 99% accuracy after training;
- Deployed TinyMaix framework to the MCU, migrated the trained h5 model to C file, occupying 5.88K RAM;
- Utilized ADC, DMA, and PWM peripheral to enable the chip for continuous triggering, sampling, and passing data to AI model for arc signal detection, with a single detection time of 7ms;
- Developed a serial port assistant in Python to send simulated arc signals to the chip and display the response signals;

Research on Simple Circuit Characteristic Analyzer Project **01/2020 - 06/2020**

- Porting ucos ii operating system to the STM32F1 micro-controller;
- Implemented DDS and ADC to achieve the measurement of input and output resistance and amplifier gain;
- Applied a frequency sweep algorithm to measure the amplitude-frequency curve of circuit, the error within 20% ;
- Designed a Human-Machine interface displayed by LCD screen;

Online Gomoku (five-in-a-row) Game **10/2022 - 12/2022**

- Applied Mini-Max searching tree & Alpha-beta pruning algorithm to achieve human-machine match;
- Conducted JavaScript (React) programming to create a web page for player to register, login;
- Developed Mongoose schemas for users, games and moves & stored all these information in MongoDB;
- Used Springboot as backend web application framework, supported CRUD actions for games and users;

EDUCATION

Memorial University of Newfoundland, St.John's, Canada **09/2021-01/2023**
Master of Engineering in Computer Engineering

The Chinese University of Hong Kong, Hong Kong, China **09/2020-06/2021**
Master of Engineering in Electronic and Information Engineering

Capital Normal University, Beijing, China **09/2016-06/2020**
Bachelor of Engineering in Electronic and Information Engineering GPA: 85.8/100

SCHOLARSHIPS AND AWARDS

- Honored Award of Outstanding Graduate of Beijing (top 5%) **06/2020**
- Honored Award of Excellent Graduation Project **06/2020**
- First-class Scholarship, Capital Normal University **12/2019**
- Second Prize Winner in the 10th Lanqiao Cup National Competition, C/C++ Language Group, Beijing **03/2019**

EXTRACURRICULAR ACTIVITIES

- **Memorial Sea-Hawks Track and Field Team, Memorial University of Newfoundland** **11/2021-12/2022**
  First place in high jump & Second place in indoor 300 meters