




SIMON CHEN

3B MECHATRONICS ENGINEERING
UNIVERSITY OF WATERLOO

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SKILLS

- **Programming Languages:** C, C++, Python, OpenCV, SQL
- **MCU / Processors:** STM32F4, Atmega, ESP8266, PIC17
- **Protocols / Interfaces:** SPI, I2C, UART, USB, RS232, RS422
- **Hardware Skills:** Analog / Digital Circuits Design, Schematic Capture, PCB Layout, Soldering, Machining
- **Electronics Debugging:** Oscilloscope, DMM, Logical Analyzer
- **Software Tools:** Keil uVision, Arduino, Git, Altium Designer, MatLab / Simulink, SolidWorks

EXPERIENCE

Drone Research Assistant

May - Aug 2018

University of Waterloo | Waterloo, ON CA

- Prototyped a magnetic docking station to automatically charge a drone when landed
- Designed two-layer PCBs for controlling electromagnets, drone onboard charging, and landing station signalling
- Implemented C++ code in Arduino for drone landing detection and charging process control

Design Verification Specialist

Sep - Dec 2017

Evertz Microsystems | Burlington, ON CA

- Designed a two-layer PCB with redundant power in PADs Logic for product GPIO testing
- Improved product development efficiency by verifying signal integrity of interfaces (Intercom, Serial, SDI, ASI)
- Troubleshooted product implementations of ethernet protocols (TCP, UDP, IP)

Data Mining & A.I. Engineer

Jan - Apr 2017

daVinci Retail | Toronto, ON CA

- Developed a sales trend forecasting model by employing exponential regression using Python and TensorFlow
- Achieved a 72% product sales prediction accuracy with 15,000+ samples with a deep neural network prototype
- Implemented a multi-dimensional clustering algorithm based on K-means++ used for client sales analysis

PROJECTS

RC Micro Drone (STM32F4, IMU, C, SPI, UART, Altium)

- Designed and laid out a four-layer PCB with a STM32F4 processor, MPU9250 IMU, and DC motor drivers
- Developing firmware for STM32F4 to receive IMU sensor data through SPI
- Implementing C code for 9-axis IMU sensor fusion, motor PWM controls, and drone PID stabilization controls

Path Navigating Robot (PIC17, C, Sensors)

- Constructed and programmed PIC17 in C to control a motorized robot based on multiple sensor feedbacks
- Designed and soldered noise reduction, signal filtering, sensor feedback, and power monitoring circuits

IoT Surveillance Motion Detector (ESP8266, Arduino, C++, Altium)

- Programmed ESP8266 Wi-Fi to interface with PIR motion sensor to monitor human presence within 6 meters
- Implemented C++ code for online system management and power consumption control