

Jian Gao

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PROFILE

A huge fan of technology, an enthusiastic engineering student, a basketball fan, and a dog lover.

EDUCATION

University of British Columbia

Anticipated Apr 2021

Bachelors Degree of Applied Science, Electrical Engineering (Biomedical Option)

SKILLS

- ❖ Violin (Level-10 certificated) & Singing & Video editing
- ❖ Solidworks, Arduino, Matlab and CircuitMaker
- ❖ Programming in C , Python, Swift and Java
- ❖ Programming in Verilog and ARM&8051 assembly

TECHNICAL PROJECTS

Coin Picking Robot

Mar 2019

Programmed in C with STM32, a 32-bit Flash ARM-based microcontroller, the robot was designed to pick up all the coins scattered within a 0.5 m^2 area using electromagnets.

- Designed and constructed the mechanism, circuits, and C code for perimeter detector, coin detector and servo motors
- Configured pins for outputs/inputs and set up makefiles
- Integrated HC-05 bluetooth module to take control of our robot wirelessly through our Android terminal

Heart Rate Monitor with EFM8

Feb 2019

To focus on real-life biomedical applications, a typical heart rate monitor was built using EFM8 8-bit microcontroller. This project was coded in C.

- Assembled the amplifying circuit and the finger clip with an infrared LED and a phototransistor attached on sides
- Set up ADC to convert the signal to a square wave and activated Timer0
- Implemented EEPROM to store the past heart rate statistics

Construction of a CPU in Verilog

Nov 2018

Digging into the operating principle behind a CPU, one of the Hardware Description Language (HDL) was used to build different components, such as a finite-state machine, a memory block, a data path etc. The approach was implemented on DE1_SOC by Terasic. Additionally, switches and a 7-segment display from DE1-SOC were connected to the CPU as I/Os.

- Developed a finite-state machine (FSM)
- Added new input/output wires to data path
- Performed the program counter and the CPU as a whole using Verilog testbench and a machine code set

ADDITIONAL EXPERIENCE

RESEARCH: FACE RECOGNITION AND MACHINE LEARNING BY SICHUAN UNIVERSITY

– SICHUAN, CHINA JUL 2019

- Composed a Python program to describe a face in sentences
- Built and trained a neural network to deduce the race, gender, and age of the person
- Delivered a formal presentation to the program supervisors

VOLUNTEER: ICT4AID'18 (SEMINAR) BY SICHUAN UNIVERSITY – SICHUAN, CHINA AUG 2018

- Participated in guest reception at hotel for the seminar
- Communicated with the scholars from University of Bradford, University of the West of England, and University of Glasgow
- Photo taking&Light Control

INTERNSHIP: QUANTUM COMPUTING AND NEURAL NETWORKS

BY BEIJING COMPUTATIONAL SCIENCE RESEARCH CENTRE – BEIJING, CHINA AUG 2018

- Learned about the relationship between quantum computing and neural network
- Used "Gradient Descend" to elevate the performance of an existing neural network
- Developed and tested a neural network that determines the possibility of simplification of polynomial equations