

# Guanxiong Chen

Computer Engineering at the University of British Columbia

## CONTACT INFORMATION

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## TECHNICAL SKILLS

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### Electrical & Mechanical

- Circuit assembly and debugging
- Circuit Simulation
- MATLAB and Simulink
- SolidWorks

- C and C++
- Assembly
- SystemVerilog
- Mathematica
- Git
- R

### Computer

- Linux
- Excel
- Html and CSS
- Python
- Java

## ACADEMIC STATUS

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### Academic Program

- 9 of 12 academic terms completed
- Anticipated date of graduation: May, 2021

### Co-op/Internship Status

- Available for 4 months beginning May, 2020

## WORK EXPERIENCE

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### Research Volunteer at UBC SPIN (Sensory Perception & Interaction Research Group)

September 2019 – Present

- Volunteering under the supervision of Dr. Soheil Kianzad and Prof. Karon Maclean, with emphasis on haptic devices
- Integrating an open-sourced robot localization library written in C++ into an ongoing haptic system running on Raspberry Pi
- Developing a software in Python, in a team of two, to allow users define relations between geometric objects in physical drawings

### NSERC USRA Research Student at UBC RESESS (The Reliable, Secure, and Sustainable Software Lab)

May 2019 – August 2019

- Analyzed malware samples from the Google Play store
- Ran DroidNative (an open-source malware detection tool) on Android app samples collected from AndroZoo, VirusTotal and various antivirus blogs
- Optimized DroidNative (written in C++) to speed up training and testing
- Wrote up Python scripts to automate tools' analysis on over 1,000 samples inside virtual machines hosted by remote servers
- Analyzed tools' performance results

### Digital Systems Design (CPEN 311) Teaching Assistant

September 2018 – December 2018

- Answered students' questions on Piazza related to course material and logistics; made over 130 contributions so far
- Addressed students' confusions related to lab assignments (hardware specification, schematic drawings, Verilog language construct, grading criteria) in 3-hour lab sessions each week
- Marked students' exams and lab assignments

## TECHNICAL PROJECTS

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### Virtual Memory System (CPEN 331, The University of British Columbia)

December 2019

- Implemented a virtual memory system with a core map, per-process page tables, related system calls on a teaching operating system (OS/161)

### Eight Queens Puzzle Solver (CPSC 110, The University of British Columbia)

June 2018

- Implemented a function independently to solve the eight queens puzzle recursively in Dr. Racket

### **Simple Image Processing SoC (CPEN 311, The University of British Columbia)**

**March 2018**

- Implemented a system used for accelerating image rotation on a DE1-SoC board independently over 2 weeks
- Used Intel Platform Designer to build the system consisting of a NIOS II-e processor, an Avalon Interface, a RAM, a VGA core, and FPGA-based accelerators
- Wrote accelerators in SystemVerilog
- Wrote code in C to test accelerators' performance

### **2-DOF PID-controlled Robotic Arm (ELEC 391, The University of British Columbia)**

**January 2018 – April 2018**

- Designed a control system for a 2-DOF robotic arm with a partner to complete a laser lightshow
- Simulated the controller and plants in Simulink and MATLAB
- Measured DC motors' parameters and compared their performances
- Visualized performance test results with MATLAB, and presented to 3 teammates and the instructor
- Implemented PID control algorithms in C++ on a ATmega2560 microprocessor

### **Autonomous Rover (ELEC 291, The University of British Columbia)**

**March 2017 – April 2017**

- Programmed a 8051 microcontroller in C to make a robotic vehicle follow designated paths constructed from AC-current-carrying guide wires autonomously
- Assembled the vehicle's circuit with multiple IC components (Op-amps, voltage regulators, H-bridges, etc.)
- Designed and implemented algorithms for the vehicle to receive commands from guide wires, using principles similar to the UART protocol

## **VOLUNTEER WORK EXPERIENCE**

### **UBC Student Housing and Hospitality Services (Vancouver, Canada)**

*Opening Day Volunteer*

**August 2016 –  
September 2017**

- Assisted the university residence's front desk team to sort students' luggage on the Move-in Day efficiently
- Answered questions from first year students regarding residential issues in professional and welcoming manner

## **EDUCATION**

### **The University of British Columbia**

**September 2015 –  
May 2021**

- Bachelor of Applied Science / Computer Engineering
- Accumulative GPA: 89% (A)

## **AWARDS**

### **Jim and Helen Hill Memorial Service Award**

**2018**

- The award is given to students who demonstrated leadership through volunteerism.

### **Trek Excellence Scholarship**

**2017**

- The Scholarships are offered every year to students in the top 5% of their undergraduate year, faculty, and school.

## **PROFESSIONAL AFFILIATIONS**

APEGBC Membership

2015 - Present