Guanxiong Chen

Computer Engineering at the University of British Columbia

CONTACT INFORMATION

Address: Box 229, 2205 Lower Mall, Vancouver, BC, V6T 1Z4
Phone: (236) 993 0329 **Email:** chenguanxiong@alumni.ubc.ca

TECHNICAL SKILLS

Electrical & Mechanical

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

Computer

- C and C++
- Assembly
- SystemVerilog
- Mathematica
- Git
- R
- Linux
- Excel
- Html and CSS
- Python
- Java

ACADEMIC STATUS

Academic Program

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

WORK EXPERIENCE

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
- Wrote code in Python to allow users define relations between geometric objects in physical drawings
- Designed experiments for the user study

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

NSERC USRA Research Assitant 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
- Preprocessed and extracted features from apps for training in DroidNative
- Wrote up Python scripts to automate tools' analysis on over 1,000 samples inside virtual machines hosted by remote servers
- Optimized DroidNative (written in C++) to speed up training and testing

TECHNICAL PROJECTS

Jack in a Box (a Blackjack machine) (CPEN 391, The University of British Columbia) **January 2020 – March 2020**

- Implemented a ML-based image recognition pipeline on a Raspberry Pi to recognize poker cards' face values
- Collected and preprocessed data for training and testing
- Implemented with a teammate the game's mechanics in a bare-metal program targeted for an ARM processor

Virtual Memory System (CPEN 331, The University of British Columbia) **December 2019**

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

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 a communication protocol for the vehicle to receive commands from guide wires, using the bit-banging paradigm

VOLUNTEER WORK EXPERIENCE

UBC Student Housing and Hospitality Services (Vancouver, Canada) **August 2016 – September 2017**
Opening Day Volunteer

- 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

Engineers and Geoscientists BC Membership 2015 - Present