Ivan Cheng

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EDUCATION

UNIVERSITY OF BRITISH COLUMBIA
B.ASc in Electrical Engineering
Sep 2017 - Present (May 2022 grad)
Vancouver, BC, Canada

COURSEWORK

Computer Communications
Introduction to VLSI Systems
Power Electronics
Digital Systems Design
Circuit Analysis I/II
Intro to Microcomputers
Systems Software Engineering
Data Structures and Algorithms
Stochastic Signals and Systems
Signals and Systems Control
Electronic Materials and Devices
Electromagnetic Fields and Waves
Semiconductor Lasers
Electro-Mechanical Energy Conversion
Economic Analysis of Projects

SKILLS

PROGRAMMING

C • C++ • Python • JS • AWS
Java • SystemVerilog • HTML
Assembly • SQL • CSS • React

SOFTWARE

Altium • Git • LTSpice • MATLAB
PSIM • Cadence Virtuoso • UML
MPLAB X • VSCode • SolidWorks
Simulink • TorotoiseSVN • Vim

EQUIPMENT

Oscilloscope • Soldering (hot air/iron)
3D Modeling/Printing • Arduino
Function Generator • Woodworking
Metalworking • Hardware Debugger

EXPERIENCE

UBC - ECE DEPARMENT | Research Intern

Sep 2020 - Dec 2020 | Vancouver, BC

- Wrote program to translate Python into SystemVerilog for creating FPGA stress test circuits (ring oscillators)
- Wrote C to sample measurements/stress FPGA test unit
- Participated in daily scrums (Agile), using Trello, Confluence, JIRA
- Worked on schematic and PCB layout of test fixture in Altium Designer, accounting for signal integrity/high current

ETC - ECHOFLEX SOLUTIONS | Embedded Engineering Intern

May 2019 - Dec 2019 | Squamish, BC

- Wrote code for PIC MCUs in C (1-Wire Communication, I2C), reducing idle power draw to extend battery life of products
- Debugged/validated products by assembling prototypes/creating test and assembly procedures
- Created schematics and PCB layouts in Altium Designer (op-amp circuits/ linear regulators)

EXTRACURRICULARS/PROJECTS

UBC FORMULA ELECTRIC | Electrical Team Member

Sep 2018 - Sep 2020 | Vancouver, BC

- Used Altium Designer to create schematics/PCB layouts
- Went through design reviews, used Git/TortoiseSVN for revision control
- Used Confluence, Trello and Slack for keeping up to date on meetings/tasks

PICTURE GUESSING GAME

- Built web app game with React, hosted on AWS, where player guesses what an image is, gradually showing more of the image for each incorrect guess
- Created CRUD API with AWS API Gateway and Lambda to get daily image/word bank/answer for game from S3/DynamoDB

AUTOCHECKOUT WITH CAPTCHA BYPASS

- Used Selenium and Python to automate adding item to cart/checkout info
- Used IBM Watson to turn Captcha speech into text, automating verification
- Reduced checkout time to increase likelihood of purchasing in-demand goods

3.5 DOF SCARA ROBOT

- Simulated control loop of motor/driver circuit to tune PID in Simulink
- Used MATLAB scripts to help tune PID (find root locus, etc.)
- Created schematic/PCB layout for motor driver circuit in NI Multisim, accounting for current requirements of motor
- Created SolidWorks model of device for co-simulation with Simulink/SimulationX to account for non-linear behaviour

COIN PICKING ROBOT

- Created zero-cross circuit to detect wire perimeter, used H-bridge to drive motors, allowing for 360 °motion
- Wrote assembly program for movement/detection routines
- Used ESP32/Blynk to allow for manual control with phone via BLE