

# Andrew Chen

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## Education

### University of British Columbia

B.Sc., Engineering Physics  
2018 – 2023  
Vancouver, Canada  
c.GPA 3.7/4.0

## Skills

### Software

Python, Java, JS, C++,  
MATLAB, HTML, CSS,  
Linux, Git, TensorFlow,  
OpenCV, EC2, Excel

### Electrical

Oscilloscopes,  
Multimeters, Soldering,  
Arduino, STM32,  
Quartus, VHDL

### Mechanical

SolidWorks, 3D  
Printing, Onshape,  
Laser Cutting, Hand  
Tools, Machining

## Courses

### Completed

- Principles of Software Construction
- Electricity and Magnetism
- Intro to Instrument Design
- Signals and Systems

### In Progress

- Practical Deep Learning for Coders
- Intro to Quantum Mechanics

## Interests

- Physics
- Video Editing
- Video Games
- Graphic Design

## Technical Experience

### Avionics Team Lead

UBC AeroDesign 

Sep 2020 – Present

- Wrote documentation for entire DAS, which includes a WebSocket server, React-based web app, Arduino, and Android app
- Wrote instructions for setting up local environments to help other members begin remote development
- Wrote a layman explanation of our systems for the competition design report
- Communicated with various other sub teams to complete tasks and optimize design

### Software Engineering Intern

EyeCloud 

Jan 2020 – Apr 2020

- Worked with the AI Solutions team to prototype a real-time medical imaging device running off a Raspberry Pi, using Python and Intel's OpenVINO toolkit to run a YoloV3 classification model
- Optimized script by switching to an asynchronous inference pipeline, boosting FPS by over 100%
- Assisted in testing and debugging of C++ code for stereo camera calibration
- Helped R&D design a better user workflow, translate documentation, and collect data for calibration of IR camera

## Projects

### Monitor Arm

SolidWorks, 3D Printing, Mechanical Design

- Designed a custom dual-monitor stand using SolidWorks and printed it using a FDM printer
- Utilized aluminum rods for structural integrity in conjunction with 3D printed joints for articulation, overall costing 20% the price of a market product

### Cyber Hobbes

Python, discord.py, MongoDB

- Created a bot using the discord.py API for daily use in a student Discord server, hosted on Heroku then migrated to a Raspberry Pi
- Wrote commands for music playing, moderation, role assignment, and entertainment, with an average of 30 calls per day
- Linked bot to a MongoDB database to show end of term satisfaction statistics

### Recycle Bot

C++, STM32, Mechanical and Circuit Design

- Worked with a team to design and prototype a STM32 powered robot that picks up soda cans and returns them to a recycling bin without any human input
- Designed and optimized an H-bridge based motor circuit for easy assembly and over-voltage protection, which failed 40x less than previous years
- Assisted in debugging and optimization of PID based line following algorithm

### Every Evangelion Frame

Python, C++, OpenCV, AWS

- Wrote a C++ program which utilized OpenCV to split videos into unique frames based on their SSIM index to capture details not typically noticed by viewers
- Wrote a Python script to post frames to Facebook and used an Amazon EC2 instance as a database for 24/7 uptime and utilized crontab to automate posting
- Reached 40k followers and 200k monthly post engagements within half a year