

Anqi Xu

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SKILLS

Programming Languages	Java, C++ /C, Python, HTML/CSS, Latex
Electrical	KiCAD, Microcontrollers, Soldering, Oscilloscopes
Mechanical	Onshape, Solidworks, Machining & Fabrication
Languages	English (native), Mandarin (fluent)

TECHNICAL EXPERIENCE

BC Cancer Research Co-op

Jan 2022 - Apr 2022

- Assisted in the development and training of a deep-learning algorithm to segment cell nuclei with up to a 98% accuracy rate
- Analyzed and delineated over 800 whole-slide histopathology images within MATLAB to further the development of a diagnostic software suite of tools
- Designed and soldered PCBs in KiCAD for multispectral imaging, emphasizing spacial efficiency

UBC Rocket — Aerostats & Airframe and Internals

Sept 2020 - May 2022

- Created and launched a meteorological balloon to test wind conditions up to 30km high to determine the suitability for rocket launches
- Designed and soldered circuits for electrical components, focusing on lightness and efficiency due to the limited payload capacity of the balloon
- Measured force and pressure within an RCS (Roll Control System) test stand using Labjack and Labview
- Calibrated a strain gauge S-type load cell for up to 30 kg

SOFTWARE PROJECTS

Machine Learning Parking Agent - *Python* | *ROS*

2022

- Developed a ROS algorithm for autonomous navigation of a robot to collect license plate information
- Trained CNNs and utilized openCV algorithms for license plate identification, character segmentation, and numerical classification

Image Editor - *C++*

2022

- Created a linked-list ADT for image manipulation, allowing for efficient rotation, rearrangement, & reversibility of input image
- Managed dynamic memory whilst efficiently partitioning images

Treasure Map Cryptography - *C++*

2022

- Used pixel modification and embedding algorithms to create a virtually indistinguishable map that can be decoded to find the treasure located at longest distance to the start

Wikipedia Web-scraper - *Java*

2021

- Implemented depth-first search and reverse hashmap sorting to determine the shortest path between two Wikipedia pages
- Created a mediator server to retrieve pages and statistical information regarding requests
- Utilized caching and staleness intervals to minimize network access

Email Analyzer - Java

2021

- Used graph theory to collect and advanced metrics based on a chain of emails, with filters to specify interactions
- Generated reports on certain users and time frames, as well as compared users based on different types of activity
- Used JUnit and test-driven development for 97% line coverage

Plagiarism Detector - Java

2021

- Created a document analyzer using Java that parsed through websites or text files to determine sentence and word level metrics, and similarity
- Developed algorithms to perform linguistic analysis using the Google Sentiment Analysis API
- Compared documents and partitioned them accordingly using similarity metrics

Portfolio Website - HTML/CSS | Flask | Javascript

2021

- Created and designed a website to display experiences, projects, and skills creatively and interactively with HTML, CSS, Python and Flask

ELECTRICAL PROJECTS

Autonomous Treasure Hunting Robot - C++ | Mechanical Design | Electrical Design

2022

- Manufactured a fully autonomous robot that follows tape, avoids bombs, and uses IR to detect, collect and store treasures within a team of four
- Integrated a [control algorithm](#) in C++ to communicate with a variety of sensors and motors
- Used Onshape and manufacturing equipment (3D printer, laser cutter, hand-tools) to construct an arm capable of detecting, identifying, and retrieving randomly located idols
- Soldered PCBs for H-Bridges, magnetic detection circuits, reflectance circuits, and limit switches

Analog-Digital Converter - Electrical Design

2021

- Created a circuit to convert an analog voltage into a digital representation via pulse generation that is then outputted into a number displayed by small LEDs

Circuit Design and Analysis Lab - Electrical Design

2021

- Experimentally designed and troubleshot steady-state RC circuits, damped harmonic oscillators, voltage amplifiers, NAND gates, and logic gates made from MOSFET and BJT transistors
- Determined values for capacitors, frequency responses, time constants, resonant frequency and damping, diodes, switching latency, amplitude responses, and critical operating parameters
- Mathematically modeled results through curve-fitting and waveform function via MATLAB

EDUCATION

The University of British Columbia

Sept 2020 - May 2025

Engineering Physics, Bachelor of Applied Science

GPA: 4.0/4.33

HOBBIES

Environmentalism

Journaling

Reading

Cooking

Exploring!