

# SHENG KUN (JASON) ZHOU

@ jasonzhou0404@gmail.com

+1 778 223 8110

in linkedin.com/in/jskzhou

github.com/JaySKZ

## EXPERIENCE

### Research Assistant | UBC Electrical Engineering

April 2021 - Present Vancouver, Canada

- Research, implementation and verification of advanced safe and constrained reinforcement learning algorithms in the OpenAI Safety Gym environment. Supervised by Dr. Maryam Kamgarpour.

### Computer Vision Algorithm Developer | Verdi AG

September 2020 - December 2020 Vancouver, Canada

- Designed image clustering algorithm using Python and Scikit allowing for farm micromanagement, increasing crop yield by >50%
- Implemented LSTM based machine learning architecture using Keras for crop health and yield prediction of up to 90% accuracy
- Constructed data pipeline for efficient and effective data preparation and visualization for analysis and machine learning purposes

### Hardware R&D Engineer | Sonus Microsystems Inc.

July 2020 - December 2020 Vancouver, Canada

- Research and implementation of compressive multiplexing techniques for medical ultrasound using novel polyCMUTs
- Implementation of National Instruments PXI based data acquisition platform
- Simulation and design of high-precision analog circuitry and electrical interface in Micro-Cap and EAGLE

## TECHNICAL PROJECTS

### Autonomous Drone Projects | Technical project

June 2019 - Present

- Developing machine vision based autonomous flight control using the open source TI Tiva and OpenMV platforms
- Integrated sensors and electrical components on the Pixhawk flight control platform to increase flight stability, controllability and aesthetics
- Embedded development, PID controls tuning and sensor testing/integration using Keil and software development in C++ and Python

### Neutrino Panoptic Segmentation | Capstone Project I

October 2020 - April 2021

- Designed and implemented FRRN and U-Net based neural network for panoptic segmentation of multi-ring neutrino interaction events
- Performed EDA on diverse data of 21 million+ complex neutrino events
- Collaborated with quantum physicists and data scientists for the HyperK Experiment at TRIUMF and globally

## COMPETITION PROJECTS

### First Place | Citadel West Coast Data Open

2021

Python • Regression Analysis • Data Scraping and Visualisation

### Fifth Place | UBC ENPH Autonomous Robot Competition

2019

C/C++ • Microcontroller Control • PCB and Electrical Design • Prototyping

## TECHNICAL SKILLS

### SOFTWARE

#### Proficient:

Python • OpenCV • Scikit-Image • Scikit-Learn • MATLAB • OpenAI Gym

#### Comfortable:

C++ • Keras • Tensorflow • ROS •  $\text{\LaTeX}$

#### Familiar:

C • Java • PyTorch

### ELECTRICAL/CONTROLS

Microcontrollers • Controls tuning • Quadcopters • SPICE Simulation • PCB Design • LabView • Electrical prototyping

### MECHANICAL

SolidWorks • AutoCAD • Machining • Rapid Prototyping

## EDUCATION

### B.ASc. in Engineering Physics

University of British Columbia

September 2017 - May 2022 (expected)

Specializing in robotics and controls

Cumulative average: 82%

### KEY COURSEWORK

- Advanced Control & Dynamical Systems
- Robotics & Instrumentation Design
- Algorithms and Data Structures
- Advanced Differential Equations
- Digital and Analog Circuits
- Classical & Quantum Mechanics

## INTERESTS/ACTIVITIES

#### Interests:

Drones and Robotics • Finance and Analytics • Machine Learning • Reading

#### Activities:

Baseball • Tennis • Fencing • Hiking • Volunteering/Community Service • Guitar • Saxophone