

# TONY XU

tony.xu@alumni.ubc.ca || tonyxu.me || (403) 499-8507 || linkedin.com/in/tony-lt-xu

## Skills

**DEEP LEARNING:** PyTorch, Keras/TensorFlow, scikit-learn, Pandas

**LANGUAGES:** Python, C, C++, MATLAB, JavaScript

## Experiences

### SUMMER RESEARCH STUDENT

**Sunnybrook Research Institute – Physical Sciences** | May 2019–August 2019

- Used deep learning and computer vision techniques to analyse digitized breast cancer slide images for cancer detection and classification with **PyTorch**
- Innovated pipeline for cancer detection, achieved **91% accuracy** on slide-level segmentation
- Preprocessed using “tissue classifier” network to distinguish important cellular regions, improving accuracy of **overall pipeline by 5%**
- Communicated with medical professionals to receive qualitative feedback on network performance, built continuous discussion to ensure a useful and usable product
- **3<sup>rd</sup> place** on 470-participant breast histology competition: BreastPathQ

### MACHINE LEARNING TECHNICAL LEAD and ELECTRICAL DESIGNER

**UBC Biomedical Engineering Student Team (BEST)** | October 2018–present

- Lead of the Multifaceted Innovations in NeuroTechnology (MINT) project ML subteam
- **3<sup>rd</sup> place** in NeurotechX student competition for creating and designing home-made EEG
- Working to create a user-centric EEG controlled home automation application

### TEACHING ASSISTANT

**UBC Department of Mathematics** | September 2019–present

- Grading and tutoring special Math 100 course with **high TA involvement**, focused on developing logical and grammatical coherence on top of mathematical competence

## Technical Projects

**Doggin' Dog GAN** | July 2019–August 2019

- Network making fake dogs using Stanford Dogs dataset with an encoding model to apply eccentric GAN-like features to a real dog image; “gannifying”
- Worked on Python backend, DCGAN model created with PyTorch, employed various GAN strategies to improve outputs
- Designed frontend with React, contained everything in Docker, deployed online with AWS

**Music Genre Classifier** | February 2019–April 2019

- Designed and trained a neural network using TensorFlow/Keras to classify genre of any song
- Optimized hyperparameters (learning rate, momentum, network depth) using GridSearchCV

**Doctor Christina** | January 2019

- nwHacks project creating voice-activated communication device for sterile environments
- Implemented voice activation, speech-to-text, and data transfer using Python back-end

## EDUCATION

**Bachelor of Applied Science**

Electrical-Biomedical

Engineering

Minor in Physics

*University of British Columbia*

Year 3, expected May 2022

**International Exchange**

Tomorrow's Youth Track

*Tsinghua University*

August 2018

## AWARDS

**June 2017**

Tuum-Est Experiential Award  
for upcoming undergraduate  
students

**September 2018**

Trek Excellence Scholarship  
for top 5% standing in Faculty  
of Applied Science

**July 2019**

NSERC Undergraduate  
Student Research Award

**August 2017, 2018, 2019**

Suncor Energy Scholarship

## INTERESTS AND ACTIVITIES

UBC Badminton Club

Cross country running

Bodyweight fitness

Piano

Snowboarding

Travelling

Experiencing new cultures

Ultimate intramurals