

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

TONY XU

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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 Medical Innovation 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”)
- 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
- Performed preprocessing and feature extraction with Librosa

**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