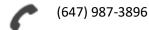
# Bill (Yuan Hong) Sun





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github.com/billyhsun billyhsun.github.io/portfolio

### **Education**

## University of Toronto, Faculty of Applied Science and Engineering

B.A.Sc. Candidate in Engineering Science, Major in Machine Learning & Artificial Intelligence Toronto, ON Sep. 2016—Jun.2020 (Expected)

## **Skills**

- Programming Languages: Python, Java, SQL, C, C++, JavaScript, HTML/CSS, MATLAB, SAS, and Verilog
- Machine Learning: PyTorch, TensorFlow, Scikit-learn, Pandas; Deep learning and neural networks
- Other Technologies: Git/GitHub, Amazon Web Services, Google Cloud, Linux, Docker, ReactJS, NodeJS, Flask, LaTeX

## **Work Experience**

#### **University of Toronto Transportation Research Institute**

Data Science Research Intern—Transportation Modelling Group (Prof. Eric J. Miller)

May-Aug. 2017

- Analyzed path data from transportation path choice modelling of the Greater Toronto Area
- Developed <u>Python</u> programs to parse, analyze, and compare transit path datasets
- Improved training time by over 50% through implemented data structures including tries
- Results were used to improve a machine learning prediction model by over 20% accuracy,
   which was useful in forecasting future transit demand and facilitate infrastructure planning

(Some code and documentations are available on GitHub)

Oct.—Nov. 2018

## **Projects**

## Music Genre Classifier—PyTorch deep learning project

- Utilizes <u>convolutional neural networks</u> and <u>recurrent neural networks</u> to identify the genre
  of a piece of music by training on music audio and their genre labels
- Original data collection using Spotify API and data scraping / manual data collection
- Uses Mel-frequency transform and feature engineering to pre-process raw music audio
- Training conducted on Google Cloud; Achieves over 80% test accuracy
- Includes a Web UI (made in <u>Flask</u>) that samples audio from a YouTube link

#### Identifying mobile phone gestures through gyroscope data—PyTorch deep learning project

Oct. 2018

- Utilizes <u>convolutional neural networks</u> to process gyroscope data from mobile phones
- Built and generated own dataset based on data collected in class
- Achieves 85% accuracy in identifying different phone movements

## SurroundSound—Music management application for venue hosts (Hack the 6ix submission)

Aug. 2018

- Using <u>React Native</u> with <u>Node.js</u>; utilized MongoDB and Postman API for data storage
- Allows users to send music preferences through Spotify API to the venue host within range and gather most popular choices; host can play music based on popularity to suit customers

#### Gospel China Bridge—Content hosting and streaming mobile application (Volunteering work)

May 2018—Present

- Using React Native with Node.js; connected to content hosted on HTTP server
- Allows users, to stream, watch, or listen to Sunday sermons in audio and video format
- User interface to help users manage downloads locally
- Includes work contribution on an <u>open-source</u> React media player during implementation

## **Interests**

Hackathons, Toastmasters, Engineers Without Borders, weather & climate, earth sciences, swim, fitness, social causes