

# Bill (Yuan Hong) Sun



(647) 987-3896



[billyuanhong.sun@mail.utoronto.ca](mailto:billyuanhong.sun@mail.utoronto.ca)



[github.com/billyhsun](https://github.com/billyhsun)  
[billyhsun.github.io/portfolio](https://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 Python 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)

## Projects

**Music Genre Classifier—PyTorch deep learning project**

Oct.—Nov. 2018

- Utilizes convolutional neural networks and recurrent neural networks 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 Flask) that samples audio from a YouTube link

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

Oct. 2018

- Utilizes convolutional neural networks 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 React Native with Node.js; 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 open-source React media player during implementation

## Interests

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