

Bill (Yuan Hong) Sun



(647) 987-3896



billyuanhong.sun@mail.utoronto.ca



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, Bash, 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
- Implemented data structures including tries to optimize data processing
- Results were used to improve a machine learning prediction model by over 20% accuracy
- Research was useful in forecasting future transit demand

(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 (in progress)

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