Bill (Yuan Hong) Sun

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billyhsun.github.io/portfolio

Education

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

B.A.Sc. Candidate in Engineering Science, major in Machine Learning & Artificial Intelligence   Sep. 2016—Jun.2021

Skills

- **Programming Languages:** Python, Java, SQL, C, C++, JavaScript (ReactJS, NodeJS), HTML/CSS, MATLAB
- **Data Science & ML:** Numpy/Scipy, PyTorch, TensorFlow, Scikit-learn, Pandas; Deep learning and neural networks
- **DevOps:** Git, Amazon Web Services, Google Cloud, Atlassian toolkit (Bitbucket, Jira, Confluence), Docker, Jenkins
- **Other:** Linux, Bash, cURL, Flask, networking communication (REST API, sockets, gRPC), Bootstrap, LaTeX, Markdown

Work Experience

Data Science Software Developer, PEY Co-op
Nuralogix Corporation || Toronto, ON || May 2019—Apr. 2020

- Assisting the development of the Anura application, a personal health app using computer vision and deep learning
- Developing a Python API interface to simplify access to the DeepAffex cloud, utilizing REST API, websocket, and gRPC
- Wrote a Python program using DeepAffex SDK and my API client, showing functionalities of the Anura app
- Created an application in Flask (hosted on AWS, using Docker), which takes in data from a user survey, analyzes using a multilayer perceptron (MLP) model, and outputs the likelihood of a mental condition with over 90% accuracy
- Developing a data pipeline in Jenkins to automate and standardize the pre-processing of raw video data

Data Science Research Assistant—Transportation Modelling Group
University of Toronto Transportation Research Institute || Toronto, ON || May—Aug. 2017

- Analyzed path data from public transit path choice modelling of the Greater Toronto Area
- Used Python and its data science libraries to process and compare datasets, by developing different fitness functions
- Results were used to improve a machine learning prediction model by over 20% accuracy
- Improved training time by over 50% through implemented data structures including prefix trees

Projects

***MusicGenre*—Music Genre Classifier Application using Deep Learning**   Nov—Dec. 2018
- Utilizes convolutional neural networks (CNNs) and recurrent neural networks (RNNs) from PyTorch
- Identifies the genre of a piece of music by training on music audio and their genre labels
- Original data collection using the Spotify API and data scraping (with manual data collection)
- Uses Mel-frequency transform, Fourier transform, and other feature engineering to pre-process raw music audio
- Training conducted on TPI service Google Cloud; Achieves over 80% test accuracy
- Includes a web interface (made in Flask and HTML/CSS) 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 and retrieval
- Allows users to send music preferences through Spotify API to the venue host and gather most popular choices

Interests

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