Bill (Yuan Hong) Sun

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EXPERIENCE

PUBLIC HEALTH ONTARIO | Machine Learning Researcher
Sep 2020 – Dec 2020 | Toronto, ON
- Applied NLP techniques to develop a sentiment analysis model that detects social media posts containing misinformation on vaccines.
- Currently achieves over 80% test accuracy on 3-class sentiment.
- Developed a dashboard web application in Python and Tableau that scrapes and analyzes new social media posts daily and displays vaccination and COVID-19 misinformation statistics.

NURALOGIX | Data Science Software Developer Intern
May 2019 – Aug 2020 | Toronto, ON
- Worked in an Agile environment; involved in both development and research work with multiple interdisciplinary teams.
- Developed a full-stack web application for testing survey-based machine learning models. Includes a microservice backend (using AWS Lambda), a Flask frontend, and PostgreSQL database.
- Helped build a symptoms-based COVID-19 assessment tool, developed from an ensemble machine learning model.
- Developed an open-source Python API interface to simplify access to the DeepAffex cloud, utilizing REST API, WebSocket, and gRPC. Wrote an open-source program that shows use cases for the API and SDK.
- Developed a Python GUI application using QT, along with a Jenkins pipeline that automated video data processing.
- Developed machine learning models to predict mental health conditions.

TRAVEL MODELLING GROUP | Data Science Researcher
May 2017 – Aug 2017 | Univ. of Toronto Transportation Research Institute
- Analyzed datasets of simulated paths from public transit path choice modelling of the Greater Toronto Area.
- Developed fitness functions in Python for path comparison. Improved efficiency by implementing data structures.
- Results were used to improve a machine learning prediction model.

PROJECTS

MUSICGENRE | Co-developer
Sep 2018 – Jan 2019 | University of Toronto
- Multiclass music genre classification utilizing convolutional neural networks (CNNs) and recurrent neural networks (RNNs) from PyTorch.
- Achieves 87% test accuracy in 4-class classification.
- Constructed an audio dataset using the Spotify and YouTube APIs.
- Utilized feature engineering techniques to process raw audio.
- Developed a Flask web demo that samples audio from a YouTube link.

UNDERGRADUATE THESIS | Machine Learning Approaches for Rapid Assessment of Anxiety
Sep 2020 – Apr 2021 | Ontario Institute for Studies in Education
- Working with Prof. **Kang Lee**. Aiming to publish by April 2021.
- Applied various machine learning techniques to predict the likelihood of anxiety disorder from a user survey, with over 90% accuracy.
- Includes a web application demo in Python and Flask.

EDUCATION

UNIVERSITY OF TORONTO
Bachelor of Applied Science in Engineering Science, major in Machine Intelligence, minor in Engineering Business
Sep. 2016 – May 2021 | Toronto, ON

SKILLS

PROGRAMMING
Proficient:
Python • HTML/CSS/JavaScript
Familiar:
C/C++ • MATLAB • SQL • R • Java

FRAMEWORKS / LIBRARIES
Numpy/Scipy • Pandas • PyTorch
TensorFlow • Scikit-learn • XGBoost
Tableau • Flask • JWT • jQuery

OTHER TECHNOLOGIES
Git/Github • AWS • Linux • Docker
Atlassian toolkit • Serverless • Jenkins
Microservices/API • Machine learning
Deep learning / neural networks • NLP

COURSEWORK

GRADUATE LEVEL
Natural Language Computing
Neural Networks and Deep Learning

UNDERGRADUATE
Thesis • Capstone Project
Artificial Intelligence
Methods of Data Analysis
Probabilistic Reasoning
Engineering Design • Robotics Design
Economics • Marketing • Management

EXTRACURRICULARS

Toastmasters Competent Communicator
Engineers Without Borders
Institute for Leadership Education in Engineering (iLead)
Blue Sky Solar Car Racing Team

LINKS

Github:// **billyhsun**
LinkedIn:// **bill-yuan-hong-sun**
Portfolio:// **billyhsun.github.io**