ZHUOLUN (Julian) DU

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Recent graduate *in Industrial Engineering with a minor in Artificial Intelligence from the University of Toronto. One year of experience as a Machine Learning Engineer, six years of coding expertise, and a strong research background. Proficient in* ***Python*** *and key Python libraries for* ***data processing*** *and* ***machine learning*** *(holding a* ***Google Certified TensorFlow Developer*** *certification), with working experience in* ***C/C++, Java, R, HTML, Django, Flask, MySQL, and Git***

EXPERIENCE

Huawei Technologies Canada - Machine Learning Engineer (Intern) May 2021 - May 2022

- Contributed to the development of a video understanding model designed to predict the attention levels in online classes
    - Model Development: Played a key role in data processing using **Python**, model development and parameter tuning with **TensorFlow**
    - Back-End Development: Took charge of the Android app's **back-end development** With **Flask**, which was utilized as the platform for testing and demonstrating the model
    - Innovative Approach: Our model built upon a customized Temporal Shift Module with our unique approach merged eye gaze and behavior detection, resulting in an higher prediction accuracy
- Conducted manipulation and analysis of PPG (Photoplethysmogram) signals collected by smartwatch
    - Algorithm Development: Developed unique data processing and augmentation algorithms in **Python** for PPG signals to enhance peak detection accuracy

Easy Education - Instructor Sep 2020 - Dec 2020

- Conducted over 16 hours of review sessions for Probability and Statistics, while also developing comprehensive instructional materials spanning over 80+ pages

Dynamic Optimization & Operations Management Lab - Summer Research Assistant

- Developed a luggage security model for detecting hazardous items in X-ray images May 2020 - Sep 2020
    - Model Development: Employed transfer learning with pre-existing models, and conducted experiments using Anomaly Detection with a Reconstruction-Based Convolutional Autoencoder

EDUCATION

University of Toronto - Bachelor Of Applied Science And Engineering - Industrial Engineering with minors in AI (3.68 CGPA) Sep. 2018 - June. 2023

- **Awards:** MIE Summar Research Award; Mitacs Research Training Award; Graduated with Honors

PROJECTS

Part-Of-Speech (POS) tagging Nov 2022

- Designed a Hidden Markov Model (HMM) for POS tagging in **Python** that includes training probability tables for HMM from training files containing text-tag pairs and performing inference with trained HMM to predict appropriate POS tags for untagged text

Decision Diagrams for Set Covering Problem Apr 2021

- Develop algorithms in **Python** that correctly generates and reduces Binary Decision Diagrams for a given set covering problem instance and solves the corresponding **optimization** problem

Reversi Game Competition - Hosted by Prof. Baochun Li Apr 2019

- Won **2nd Place overall** (out of 300+ participants)
- Main Algorithm: Recursive Implementation (in **C**) of Minimax Decision Tree with Applied Alpha-beta Pruning to skip non-influential decision branches and Iterative Deepening which prioritizes the visit of previously deleted nodes