Joseph Mok

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Portfolio Website: https://hjmok.github.io/josephmok_portfolio
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Summary of Qualifications

- Proficiency in utilizing TensorFlow/Keras, PyTorch, Scikit-Learn, OpenCV, NumPy, and Pandas libraries in Python
- Programmed various machine learning models including linear/logistic regression, CNN, RNN, NLP models, etc.
- Well versed in data preprocessing and feature engineering in preparation of machine learning model training
- Experienced with SCADA and PLC software packages, including Allen Bradley and Ignition Automation Software
- Experienced integrating MySQL, Python scripting, and Ignition for capturing SCADA trend data and data analysis
- Strong cross-functional project management experience from leading various multidisciplinary projects

Professional Experience

Yaya Foods Corp. *Toronto, ON*
Automation Engineer, July 2019 – Present

- Lead the automation design for several SCADA systems for beverage manufacturing clients by integrating Rockwell Automation PLCs/HMIs, Ignition Automation Software, MySQL, and ethernet IP networks
- Developed data mining process by storing transmitter data from PLCs to MySQL database using Ignition SCADA packages. Developed client applications within Ignition for data analysis (heavy Python scripting)
- Gained strong troubleshooting skills for hardware and software to determine root cause of production halts
- Sourced transmitters, motors, VFDs, valves, and necessary hardware for new automation systems

Apple Inc. *Cupertino, CA*
Recycling R&D Engineer Intern, September 2018 – April 2019

- Managed development of recycling systems for Apple products. Involved heavy coordination with vendors and internal Product Design teams to organize documentation and deadlines
- Developed optimal cycle time processes for de-manufacturing of various Apple products. Resulted in a 90% increase in the Unit-per-Hour output compared to the current manual methods
- Designed semi-autonomous prototypes to showcase cycle time and disassembly improvements. Designs continuously integrated feedback to improve operator ergonomics and meet California waste regulations

Projects

The following listed are NLP projects. To see all my projects, please visit: *https://hjmok.github.io/josephmok_portfolio*

Topic Modeling for Question and Article Categories *https://hjmok.github.io/josephmok_portfolio/#/TM*

- Used Latent Dirichlet Allocation (LDA) and Non-Negative Matrix Factorization (NMF) methods to form pre-determined number of clusters that acted as assigned topics to a Quora questions and NPR articles dataset
- Created a document term matrix, then fit onto Scikit-Learn's NMF and Latent Dirichlet Allocation imports
- Resulting model was able to assign each article/question to one of 12 topics, which the end user interprets

TFIDF Text Classification *https://hjmok.github.io/josephmok_portfolio/#/TFE*

- Created a supervised learning model to classify Positive/Negative reviews in an Amazon Reviews dataset and Ham/Spam text messages in an SMS dataset. Data-preprocessing involved removing null rows
- Utilized Scikit-Learn's TfidfVectorizer to Count Vectorize each unique word in the training set, then applied Term Frequency-Inverse Document Frequency feature extraction to said words. Then used Scikit-Learn's LinearSVC (Support Vector Classifier) to return the best fit hyperplane to categorize the data.
- Achieved a 98% accuracy on the SMS dataset and 86% accuracy on the Amazon Reviews Dataset

Novel Text Generation Model *https://hjmok.github.io/josephmok_portfolio/#/TG*

- Used PyTorch to create a deep learning model that uses novels such as Shakespeare and Tom Sawyer as inputs, then outputs texts that match the tone/vocabulary similar to the input novel.
- Encoded every unique word in the novels and prepared them in batches with experimental sequence lengths
- Model utilized LSTM layers and dropout layers, which input texts in batches to help the model understand the grammatical structure of the novels

Facebook Babi Dataset Chatbot *https://hjmok.github.io/josephmok_portfolio/#/CB*

- Created a chatbot by implementing End-to-End Memory Networks and LSTM layers with Keras
- Trained on the Facebook Babi Dataset, which consists of a Story, Question about the story, and Answer. As such, the chatbot took takes a Story and Question as inputs, then outputs the Answer.
- Resulting model achieved close to 95% accuracy on the training data and up to 90% on the test data

Education

University of Waterloo,
Bachelor of Applied Science, Honours Mechanical Engineering, Graduated June 2019