LAWRENCE PANG

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SKILLS

SUBJECTS: Machine Learning, Data Science, Data Engineering, Full-Stack Development, Image Processing
GENERAL: Python, Java, C++, MATLAB, Scala, Solidity
WEB: JavaScript, React, AWS (Lambda, API Gateway, SQS), Node, Django, d3.js, Express, Flask
DATA SCIENCE: R, Spark + Spark ML, Jupyter Notebook, TensorFlow, Pandas, Keras, OpenCV, Kafka
DATABASE: SQL, ElasticSearch, AWS (S3, DynamoDB), MongoDB, Hadoop
OTHER: Bash, Git, Linux

EMPLOYMENT

KPMG
Software Engineer
- Clustered document templates using **Agglomerative Clustering** in **Spark** and **Spark ML**, correctly classifying **95%** of documents
- Extracted tabular information from unstructured data with **pandas**, **SQL Server**, and **Tesseract OCR**, using a novel **fuzzy matching algorithm**
- Successfully predicted **97%** of employee attrition events with **xgboost** model
- Led development of interactive **d3.js** visualization of employee relationships and implemented **tree algorithms**

SUNNYBROOK RESEARCH INSTITUTE
Software Intern
- Created **MATLAB** software to automatically detect anatomical structures in MRI images
- Increased efficiency of segmentation process by **80-90%** with comparable accuracy to manual segmentation
- Used **image morphology** techniques and **unsupervised learning algorithms**

WATONOMOUS
Core Perception Team
- Core member of autonomous car team that will compete in GM's AutoDrive Challenge
- Used **convolutional neural networks** in **TensorFlow** with **OpenCV** to segment and classify traffic signs

PROJECTS

OURBLOCK (PYTHON, AWS, ELASTICSEARCH, FLASK)
- Community safety app which placed **Top 30 of 1500+** contestants at the **Disrupt SF 2018** hackathon
- Developed **serverless backend** with **AWS Lambda**, **S3**, **SQS**, and **API Gateway**, and stored and queried data using **ElasticSearch**
- Classified crimes using a **Support Vector Classifier** with **scikit-learn** and **NLTK**, and posted messages to **Ethereum network** with **Solidity**

NEWS VISUALIZER (PYTHON, REACT, AWS, ELASTICSEARCH)
- Visualize trending news topics and relationships between newsmakers with **React, d3.js** and **natural language processing**
- Performed **named entity recognition** using **NLTK** and indexed articles in **ElasticSearch**
- Developed **serverless backend** with **AWS Lambda**, **S3**, and **API Gateway**

SOCCER SENTIMETER (PYTHON, DJANGO, SQLITE)
- Created dynamic website tracking Twitter sentiment of soccer teams, with a clean, responsive design
- Used **natural language processing** and various APIs (Google Maps, Twitter, Highcharts, MediaWiki, TextBlob) to generate an **SQLite3** database

SOFA SEARCH (PYTHON, FLASK, KERAS)
- Recommendation system for sofas and other furniture, created at Hack the North 2017 with the **Flask** framework
- Used **reinforcement learning** on a **convolutional neural network** in **Keras** on a **Tensorflow** backend to identify features from images of furniture

INTELLIGENT LIGHTING SYSTEM (C++)
- Created an intelligent mood lighting project running on a **Linux embedded system**
- Designed and implemented **facial detection** and **image morphology algorithms** from scratch

OPENAI GYM (PYTHON, TENSORFLOW)
- Solved OpenAI environments such as Taxi and Cart-Pole using **reinforcement learning** with **TensorFlow** and **Jupyter Notebook**
- Implemented algorithms such as **Q-Learning** and **SARSA**

EDUCATION

University of Waterloo
Software Engineering 2022
GPA: 94/100

Online Courses
Big Data With Scala and Spark (EPF Lausanne)
Data Analysis With R (Facebook)
Deep Learning (Google)
Big Data Applications: Real-Time Streaming (Yandex)

AWARDS

Sept. 2018	Disrupt SF Hackathon · TOP 30 OUT OF 1500+ CONTESTANTS
Aug. 2018	Leetcode · TOP 1% OF CONTESTANTS
July 2016	International Linguistics Olympiad · TEAM CANADA
Jan. 2017	Canadian Senior Mathematics Challenge · NATIONAL CHAMPION