Derek Shao

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Work Experience

Statistics Canada | Software Engineer Co-op
September 4, 2019 – Present | Hadoop, Spark, Java, Scala, Python

- Created machine learning pipelines for distributed training in Apache Spark of record linkage classifier with 90%+ accuracy
- Developed distributed data processing pipelines with Apache Spark to improve performance of existing algorithms for record matching of Canadian citizens
- Research and presented the Apache Spark software ecosystem for big data processing to managers of various software teams, garnered interest as a replacement for legacy software

Ciena | Software Developer Co-op, Blue Planet Analytics
January 7, 2019 – August 30, 2019 | Tensorflow/Keras, Spark, Kafka, Java, Scala, Python

- Implemented backend APIs for web application developed with Java/Scala to allow users to start data processing Spark jobs and use machine learning models to classify network errors
- Built streaming and batch data processing pipelines with Apache Spark and Kafka to enable real-time machine learning predictions for potential network errors
- Constructed deep learning models and applied machine learning with various libraries such as Tensorflow, Keras, and Scikit-learn to predict network errors with 75%+ accuracy

Pythian | Software Developer Co-op
April 30, 2018 – August 31, 2018 | Node.js, GraphQL, React, AWS, Docker, TypeScript

- Used a wide range of frameworks and languages including React, GraphQL, Express, AWS, and TypeScript to develop new features for a large-scale web application
- Implemented RESTful APIs and created custom Docker images for microservices deployed to AWS Elastic Container Service enabling services to self-repair when unhealthy; introduced fault tolerance and high availability to each microservice
- Modified AWS stack using CloudFormation to scale EC2 instances with high memory and CPU utilization resulting in increased scalability with higher traffic

Projects

RealTimeMandarin
September 2019 – Present | ReactJS, Python, Flask, Tensorflow
- Application for learning Chinese; tests ability for students to draw Chinese character on drawing canvas developed with React and passes if guessed correctly by neural network

Pomodoro
Oct. 2017 - May 2018 | Node.js, JavaScript/jQuery, HTML5, CSS, MongoDB, Redis
- Created web application implementing an anti-procrastination technique and task list
- Implemented backend server using Node.js/Express to serve static/dynamic files with UI designed with HTML, CSS, and EJS template engine, return JSON responses, and process data in a MongoDB database

SMARTCalc
March 2017 – June 2017 | Java, Android, Firebase
- Programmed an Android application using Android Studio that parses string inputs into computable mathematical expressions using the Shunting-Yard algorithm
- Implemented custom gesture detection in application to allow users to manage equations (e.g. swipe to delete, tap to load equation etc.) stored for convenience

Education

Carleton University
Bachelor of Engineering, Software
Sept 2016 – Present
CGPA: 11.84/12.0
Carleton Academic Scholarship
Dean's List
Expected Graduation: April 2021

Skills

Languages
Java
Scala
Python
JavaScript
C
C++
HTML5
CSS
SQL

Tools
Apache Spark
Docker
Amazon Web Services
Unix Bash Shell
Jupyter Notebook
Git

Frameworks/Libraries
Express (Node.js)
Tensorflow/Keras
Scikit-Learn
React
GraphQL
Django
Pandas
Numpy
Android SDK

Database
MongoDB
MySQL
Redis