zexihan.com/portfolio
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Zexi Han

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Education

M.S. in **Data Science** (GPA: 3.8), **Northeastern University**, Boston MA — Jan 2017-May 2019

B.S. in **Telecommunications Engineering,** (First Class Honors, GPA: 3.5) — Sept 2012-Jun 2016

Beijing University of Posts and Telecommunications, Joint Program with QMUL, Beijing China

Skills

Languages: Python, Java, JavaScript, Typescript, C/C++/STL, Swift, Scala, HTML5/CSS3, SQL, R, MATLAB, bash

Frameworks: Hadoop MapReduce, Spark, Spring MVC/Boot, JPA, React, Redux, Angular, Node.js, Express, Django, Flask, Scrapy, Pandas, NumPy, scikit-learn, Tensorflow, PyTorch, Caffe, OpenCV, D3.js

Databases/Tools: PostgreSQL, MySQL, MongoDB/mongoose, Redis, Realm, Snowflake, Firebase, AWS, Docker, Git

Knowledge: OOP/OOD, Design Patterns (MVC, Factory, Pub/Sub, etc.), Machine Learning, Big Data

Professional Experience

End-to-End Machine Learning – Reseller Identification — Jan 2018-Jun 2018

Data Scientist Co-op at Rue La La, Rue Gilt Groupe (Boutique Retailer), Boston

- Developed an end-to-end learning system with Python and XGBoost model for personalized boutique recommendation.
- Extracted features with SQL, NumPy, and Pandas on user profile, purchase history, and site activity data of 2M buyers.
- Trained and tuned XGBoost model on iteratively-refined dataset to overcome the class imbalance.
- Dockernized the system and deployed it onto Amazon ECS, Airflow, and Snowflake for automated ETL process.

Caffe-based Visual Search for Same-Style Product Images — Aug 2015-May 2016

Software Engineer Intern - AI at Taobao, Alibaba Group, Beijing

- Designed and built a three-stage hybrid visual search framework (classification, object detection and matching) based on ConvNet implemented with Caffe in C++, which awarded the Outstanding Final Project (Rank 12/680).
- Pre-processed 5M images of 676 classes from Taobao.com using the imgproc module of OpenCV.
- Fine-tuned AlexNet for image classification and Faster R-CNN for both object detection and feature extraction.

Project Experience

TripElf – Map-based Web App with Neighborhood-Level Airbnb Review Summarization, NU — Jan 2019-Apr 2019

- Developed a web map application with React, Redux, JPA with Spring Boot, and MySQL stack.
- Developed the frontend with React, Mapbox GL JS, and D3.js; used Redux for centralized state management.
- Implemented the MVC backend with Spring data JPA and MySQL database for site activity storage.
- Applied text models (KL-Sum, LDA-Sum and ELMo) for Airbnb reviews summarization with NLTK and PyTorch.

TuneS – Social Music Website, NU — Jan 2019-Apr 2019

- Developed a music themed SPA using Angular, Express, MongoDB, Node.js stack and Spotify Web API.
- Designed and developed the AJAX-based frontend with Angular for interactions (browse/comment/like/share/follow).
- Implemented the RESTful APIs with Express and MongoDB/mongoose; used Redis as web cache.
- Used Passport.js for both local and OAuth-based user authentication.

Parallel Matrix Multiplication in MapReduce, NU — Sept 2018-Dec 2018

- Implemented the parallelization algorithms (Horizontal-Vertical Partitioning and Vertical-Horizontal Partitioning) for large synthetic dense and sparse matrix multiplication with Hadoop MapReduce in Java.
- Implemented the same algorithms using Spark Scala and tested their speedup and scalability performance.
- Deployed the programs onto Amazon EMR running with different settings of the cluster; stored the results to S3.

Magical Newspaper iOS App with ARKit and CreateML/CoreML — Jun 2018-Sept 2018

- Created a mobile app in Swift using ARKit for detecting images and playing video in augmented reality.
- Used CreateML/CoreML for sentiment prediction of newspaper title by analyzing tweets fetched from Twitter API.
- Designed and developed abstract object model classes, storyboard views, and view controllers.

Coursework

Algorithms, Machine Learning (TA), Web Development, Computer Vision, Parallel Data Processing, Data Mining, Mobile App Development, Software Engineering, Calculus, Linear Algebra, Principles of Communications