RUI CHEN

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Computer Science M.S. student at **Georgetown University**, looking for **Software Engineering/Data Science Internship**.

EDUCATION

Georgetown University **M.S. Computer Science** **Aug 2021 – now**

- GPA: 3.833/4.0
- Anticipated Graduation Date: **May 2023**

Wuhan University of Technology **B.E. Computer Science and Technology** **Sept 2015 – Jun 2019**

- GPA: 3.74/4.0
- 3rd-level Scholarship in Nov 2018, 2nd-level Scholarship in Nov 2017

ON-CAMPUS EXPERIENCE

ToyDB: Implementation of Relational Database Management System — Feb 2022 – May 2022

***Team Leader* | Georgetown University, U.S. | Advisor: Ophir Frieder**

- Implemented a relational DBMS using `Java` with `Visitor Design Pattern` that supports nearly full `SQL syntax` including `implicit JOIN` and arbitrary expression evaluation for `WHERE` and `UPDATE` conditions
- Implemented full `integrity constraints`, `cost-based` and `rule-based` query optimizations
- Achieved **less than 1 second response** for manipulating 1-million-records table.
- Open source on Github

the Impact of COVID-19 on people's Travel by Air — Aug 2021 – Dec 2021

***Main Contributor* | Georgetown University, U.S. | Advisor: Lisa Singh**

- Obtained data from CDC, OpenSky, Crawled tweets contains keywords "Covid" and "flight" from Twitter and cleaned all data.
- Tagged randomly selected tweets and performed Sentiment Analysis for tweets text using `VaderSentiment`.
- Performed `SVM`, `random forest` and other 4 classifier on CDC data to test their performance on classification of labeled death rate.
- Designed static front-end web page based on `bootstrap`

Improvement of Object Detection Algorithm YOLOv3 — Feb 2019 – Jun 2019

***Lead author of Thesis for B.E.* | Wuhan University of Technology, China | Advisor: Gang Liu**

- Conducted the study of feature extraction backbone network `DarkNet-53` and feature interaction network of `YOLOv3`, and the implementation based on PyTorch
- Proposed improvement ideas concerning the `prior frame` of the model `YOLO` layer and the network structure of `feature pyramid`. Also proposed improvement ideas targeting at training dataset
- Implemented this improved algorithm with **58.59% mAP** (better than the original one with 35.6% mAP) on `BDD100K` dataset at the real-time level for detection

Internet News Classification and Recommendation System — Mar 2018 – Aug 2018

***Team Leader* | Wuhan University of Technology, China | Advisor: Gang Liu**

- Constructed a `character-level` CNN classification model based on TensorFlow with input of vectorized text data using `word2vec`
- Trained the model with 450k news data from and achieved a classification accuracy over 95%
- Designed and developed web back-end interaction via comprehensive implementation of `spring boot`, `redis` and `mongoDB` for web service
- Fulfilled the distributed system based on a 4-server platform using `Hadoop`, `HDFS` and `HBase` with group members and became one of the five 1st Prize winning groups in **China University Student Design Competition**

Book Recommendation System based on book reviews — Mar 2018 – Feb 2019

***Team Leader* | National Undergraduate Innovation Training Program | Advisor: Qizhi Qiu**

- Pre-processed data regarding Chinese text tokenization based on `jieba`, stop words, etc
- Trained word embedding model with `word2vec` based on Chinese Wikipedia corpus (5 million articles) as tag library
- Extracted keywords from "douban" book reviews using `tf-idf` and contributed to the design of tag sets and the algorithm calculating correlation between tag sets

- Developed the system “Shu Yun”, applied for an invention patent(Application No.# 201910109797.1), and approved as a National level project
- Submitted to the 1st “Big Data Innovation” competition and won the 2nd Class Prize

WORK EXPERIENCE

CMB YunChuang Information Technology Co., LTD **Oct 2020 – May 2021**

Data Development Engineer **| Wuhan, China**

- Developed scripts to export daily/monthly/yearly forms from bank transactions.
- Developed `DAO` part of a demo phrase system “Cloud Map” using `Django` based on graph database `Neo4j` and `Nebula Graph`.

Wuhan Little Times Media Co. LTD **July 2018 – Aug 2018**

Back-end Engineer(Full-time Internship) **| Wuhan, China**

- Developed a C2C web platform for help-yourself Electrocardiogram(or ECG) test based on `spring` and `mysql` that contains 2 roles: doctors and patients.
- Developed user system, order system and devices management for different roles separately.
- Developed requests maker to fetch data from ECG self-testing devices based on `okhttp3`.

SKILLS

- Solid experiences in: `Python`, `Java`, `Spring`, `SQL`, `gensim`, `NLTK`, `PyTorch`, `Tensorflow`
- Solid knowledge in: Algorithms, Data Structures, NLP, CV
- Language: native in Chinese, proficient in English