Zhou Zhengbo

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EDUCATION BACKGROUND

Northwestern University (Chicago, US) **01/2021 – 06/2022**
- Master Degree in Information Technology, McCormick school of engineering
- GPA 4.0/4
- Courses: Machine learning, Data Science, Computer vision etc.

University of California, Riverside (Riverside, US) **08/2018 – 06/2019**
- Overseas Exchange in Computer Science Major
- GPA 3.8/4
- Courses: Information retrieval, Computer Networks, Intermediate Algorithms etc.

Lanzhou University (Lanzhou, China) **09/2015 – 06/2018**
- Bachelor Degree in E-commerce on School of information science and engineering
- GPA 4.42/5
- Courses: Programing Language, Data structure, Algorithm etc.

WORK EXPERIENCES

ElectrifAI **02/2020 – 09/2021**

Position: Senior Engineer

Recognition of abusive behavior of dairy cows | *Deepstream, YOLO, TensorRT, darknet, Docker, OpenCV, etc*
- Based on NVIDIA's **Deepstream** framework, the real-time input video streams from different scenes of the farms are obtained. **Yolov3 tiny** is transformed into **TensorRT** to recognize and track objects in the farms and the model processing speed is significantly improved to 15 frames per second. Finally, the potential probabilities of these animal abuse behaviors are calculated by means of object boundary frame coincidence, **optical flow** estimation using **OpenCV**, **image morphology**, sensitive areas and so on.
- Design and implement end-to-end applications using **Python** in **Linux**, use **FFmpeg** and **OpenCV** to store and merge video streams to generate target video clips. Then the target video clips are saved to **Azure** Cloud.
- According to the project requirements, the Yolo data set is organized and the Yolo training parameters are adjusted to achieve better performance. By comparing the performance of **yolov3 tiny**, **yolov3** and **yolov4** on the test sets, the animal recognition accuracy can reach 93% on the animal farm test set based on **Darkne**t.

Skin Cancer Detection | *Tensorflow, EfficientNet*
- Reorganized the image datasets from the public and the private in order to balance training datasets to better distinguish Basal Cell Carcinoma skin cancer with others.
- Modified the parameters of models and use **EfficientNet** to achieve 95% accuracy on test set.

Visual recognition of deep-sea oil well | *YOLO, Pytorch, Albumentations*
- Use **yolov4** to identify the status information of deep-sea oil well equipment. Use the data enhancement methods provided by **albumentations** and **pytorch** to improve the robustness of the model in exceptions.
- The model based on **yolov5** realizes the real-time detection of construction personnel and safety helmets.

Asset management in portfolio | *Reinforcement learning*
- Use **policy gradient policy** from **reinforcement learning** to retrieve maximum portfolio given a chosen asset.
- The model performs better than Follow-the-Winner and Follow-the-Loser policy on certain Chinese market.

Truecommerce (Shanghai, China) **08/2019 – 02/2020**

Position: Software Engineer

Cross-border e-commerce platform | *Git, Typescript, c#, KnockoutJS, KendoUI, SQL Server, etc*
- Use the **git** tool to control the version and released some new versions of products independently.
- Familiar with front-end frameworks and developed the products based on **MVVM** developing mode. Equipped with front-end technology, such as **KnockoutJS** and **KendoUI** frameworks and **Typescript** to realize the interface interactive function proposed by customers or testers.
- Familiar with back-end frameworks such as .NET and back-end technology such as **WCF services** and **Nhibernate**. Optimize the database structure in **SQL Server** and the algorithm for reducing the times for requesting to server based on business requirements by using **C#**.

University of California, Riverside DataScience Laboratory (Riverside, US) **09/2018 – 01/2019**

Position: Laboratory Assistant

Housing website crawl | *Java, Selenium, mysql, multi-thread*
- Use **Java**, **Selenium** to develop the project to crawl average house price of hotels from every state in U.S ranging from 2018-2019 and other information on housing website. Then preprocessed those data and saved them in **mysql**.

- Design **multi-thread** program and **try-exception** mechanism in order to improve the speed of crawling data and prevent some abnormal cases which may crash the program.

Twitter crawl | *Python, ElasticSearch, Tweepy, Tf-Idf*

- Use the **Tweepy** to construct crawling program which could filter out data based on the location of twitters.
- Preprocess the crawled data and put them into **ElasticSearch** based on index
- Design the web search machine that when users input the keywords, the web returns a list of contents of twitters based on **Tf-Idf** scores.

RESEARCXH EXPERIENCES

Kaggle Siim-isic-melanoma-classification **06/2020 – 08/2020**

- Familiar with how to preprocess the image data and responsible for training model **efficient-net** and modified the parameter for training.
- Rank Top 3% among the competition

Kaggle Siim-fisabio-rsna covid-19 Detection **06/2021 – 08/2021**

- Use **Cascade R-CNN MMDetection** and **YOLOv5** to detect the location of covid-19 at the image level
- Use **EfficientNet** to predict the class of covid-19 at the study level
- Rank Top 11% among the competition

Kaggle Optival Realized Volatility Prediction **08/2021 – 01/2022**

- Use Feature Engineering to extract useful features from stock market data
- Use **LGBM** and **Neural Network** to predict the short-term volatility for stocks
- Rank Top 3% among the competition

Suixinlian- Online fitness platform Application | Node.js, Express, Firebase, Javascript, CSS, HTML, etc

- Develop a multi-user online fitness platform with SEO, which supports trainers and courses **CRUD**, online video streaming, chat room, contact form, etc.
- Design frontend with **HTML**, **Javascript** and build backend with **Node.js**, **Express** and **Firebase**.
- Design database structures in Firebase to save data ranging from videos to records, use **Javascript** and **Firebase** to create user account, test user identity authentication.
- Implement a recommender system to show a list of preferable courses and fitness coaches based on **collaborative filtering** algorithm.

PUBLICATIONS

09/2021 *Conference on Machine Learning and Soft Computing* | *Attentive Manifold Mixup for Model Robustness (accepted),first author*

11/2018 *Coal Economic Research* | *The game analysis of credit management on the third party e-commerce trading platform in coal industry* (in print)*, first author*

09/2018 *Computer Simulation* | *Research on real-time information extraction method of mobile-commerce logistics* (in print), *first author*

07/2017 *Computer Software Copyright* | *Small curriculum - OSS assisted learning software(software copyright)* (in print)

EXTRACURRICULAR ACTIVITIES

Student union of School of Information Science & Engineering, Lanzhou University **09/2015 – 06/2018**

Position: Vice President

- Organized some important school activities like sports meeting

Lanzhou University Youth volunteer council **09/2015 – 06/2017**

- Organized and participated in volunteer activities

Basketball team, School of Information Science & Engineering, Lanzhou University **09/2015 – 06/2017**

- Team leader