Mingzhi Zhu

Curriculum Vitae

School of Software Engineering, Tongji University
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EDUCATION

Tongji University **Shanghai, China**
B.Eng. in Software Engineering *Expected Graduation: June 2022*
GPA:4.48/5(89.8/100),Advanced GPA:4.82/5(93.2/100)

Relevant Coursework: AI and Business Intelligence, Data Mining, Human-Computer Interaction, Calculus, Data Warehouse, GIS Introduction, Memory Databases, Software Testing, Principle of Compiler, Design Pattern, Java EE Programming, Software Engineering Economics, Discrete Mathematics, Probability and Statistics, Data Structures, Algorithm Design And Analyss, Software Engineering et al.

RESEARCH EXPERIENCE

Financial Network Risk Measure and Prediction **Tongji Univ, Shanghai**
Advisor: Prof.Dawei Cheng, School of Computer Science *Apr. 2021 - Nov. 2021*

- I use content-based intelligent crawler to get three core data(assets,liabilities,buffer) and five operating indicators of 150000 banks in the world.
- I refactor simulation algorithm in Python to improve the network generation algorithm using Segment Tree, greatly increasing the speed of generating simulated networks.
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Bus Drivers Behaviors Perception **Jiading Bus Co&Tongji Univ, Shanghai**
Advisor: Prof.Yu Shen, School of Transportation Information *Nov. 2020 – Jun. 2021*

- I use the Keras to build a deep convolutional neural network for driver action perception.
- I use two optimizers, Adam & RMSprop, to train the model step by step and set the Dropout layer to optimize the training results and reduce overfitting.
- I use the technique of activation class diagram to visualize the output of the model perception results.
- I use decision tree models, combined with OCR and other technologies,to identify spatio-temporal information in the video.

E-commerce Recommendation Attack Identification **Univ of Technology Sydney, Sydney**
Advisor: Prof.Ying Zhang,School of Computer Science *Sep. 2021 – Oct. 2021*

- Focus on user-item click records.
- Click records is provided by a kafak message queue,I apply xgboost algorithm to dichotomize user product click records.
- I packaged the binary model and workflow as a docker image to be deployed on the cloud server.

HONORS & AWARDS

- Meritorious Winner of the Mathematical Contest in Modeling,COMAP, 2021 **(Top 7%)**
- National Second Prize in Mathematics competition of Chinese College Students,Chinese Mathematical Society, 2020 **(Top 3%)**
- Social Activity Scholarship,Tongji University, twice, 2019&2020 **(Top 5%)**
- First-Class Scholarship, Tongji University, 2019 **(Top 5%)**

PROJECTS

Codepass Cloud Code Q&A Community *Oct. 2020 -Dec. 2021*

- The project is a question and answer community with the theme of solving code problems.
- The project is implemented based on Docker containers, and each question asked by the user provides a docker container for simulating the user's environment.
- The front-end of the project is implemented based on the React framework.
- Using Redis as a data cache, some hot data is stored in Redis, and when it's needed, it's taken directly from memory, greatly improving speed and saving server overhead.

Film Information Storage System *Sep. 2020 – Jan. 2021*

- 250,000 pieces of movie data were obtained from Amazon.com using a crawler.
- Use **Hadoop** to build a distributed system to store data.
- Examine the performance of a data warehouse built using hadoop, by comparing it with a relational database(mysql) and a non-relational database(neo4j).

TV Drama Recommendation System *Apr. 2021 – Jul. 2021*

- The data for the project is the TV program viewing history of 26,000 subscribers in a city, as well as some information about these programs.
- The project implemented two recommendation algorithms DKN and NRML in the PyTorch framework based on the methods provided in the existing papers.
- Use Tensorboard to display training results in a dashboard and compare this result with the traditional algorithm such as ALS.

Entity Information System *Feb. 2021 – Apr. 2021*

- The knowledge graphs in this project are derived from publicly available financial datasets provided by Reuters.
- The project implements data pre-processing and storage, provides basic read, import, and storage functions for data sets, through the Neo4j graph database.
- The project implements a relational query between one and multiple companies/individuals in the dataset and presents it in a visual way.
- The project implements a custom scoring system for companies/individuals based on the association between companies/individuals and corporate information.

Map of Shanghai Cultural Enterprises *Mar. 2021 – Jun. 2021*

- Developed a dynamic map of Shanghai based on Arcgic API.
- The front-end is built using Vue framework, supporting the show/hide of map layers, as well as complex interactive operations such as jumping by clicking, counting the number of cultural enterprises, and predicting the distribution of cultural enterprises.
- The cultural enterprise distribution prediction uses the MaxEnt model, based on the distribution of streets, cultural heritage, economic development index and the distribution of existing cultural enterprises in Shanghai.

PUBLICATIONS

- **Mingzhi Zhu**, Dawei Cheng, Zixuan Tan,Simulation Network of Global Major Commercial Banks .Scientific Data 2021.(Under review)
- **Patents:**An Interpretable Deep Learning-based Model for Perceiving Bus Drivers Behaviors.(Under review)

TECHNICAL STRENGTH

- **Programming Languages:**C/C++,Python,C#,Java,HTML/CSS,Javascript,R,LaTeX
- **Platforms:**Linux, Windows, Android
- **Packages & Tools:** Numpy, Pandas, TensorFlow, Keras, PyTorch, Tesseract, Matplotlib, Sklearn, Scipy, MxNet, Git

ADDITIONAL

- **Sports:** Table Tennis(silver medal in University-wide competition), Soccer(Bronze medal in college league)
- **Volunteer Activities:**"SunShine Home" Service Center for the Disabled, Anting Town, Jiading District, Shanghai, 160 hours of volunteer service.