Zhirui Zeng

✉ zhiruizeng@cqu.edu.cn · ☎ (+86) 133-7260-3242

🎓 Education

Chongqing University (CQU), Chongqing, China   2021 – Present

M.S. in Computer Science and Technology, expected June 2024

- **Faculty Mentors:** Prof. Shangwei Guo
- **Key Modules:** Graph Theory; Machine Learning; Digital Image Processing; Scientific Research Methods and Thesis Writing; Algorithm Analysis and Computational complexity.
- **GPA: 3.58** / 4.

Chongqing University (CQU), Chongqing, China   2017 – 2021

B.S. in Computer Science and Technology

- **Faculty Mentors:** Prof. Shigang Zhong
- **Key Modules:** Algorithms and Data Structures; Principle of Computer Composition; Operating System; Computer Network; Database System; Discrete Mathematics.
- **GPA: 3.38** / 4.

🪄 Research Interests

- Artificial Intelligence Security
- Large-scale Language Model Security
- Multimodal Model Security
- Adversarial Machine Learning
- Natural Language Processing

⚓ Publications

1. **Zhirui Zeng**, Tao Xiang, Shangwei Guo , Jialing He, Qiao Zhang, Guowen Xu, and Tianwei Zhang. Contrast-then-Approximate: Analyzing Keyword Leakage of Generative Language Models.
   - **Journal Name:** IEEE Transactions on Information Forensics and Security (TIFS)
   - **Status:** Under Review

2. **Zhirui Zeng**, Lishuang Hu, Shangwei Guo, Jialing He, Tao Xiang, Tianwei Zhang. Auditing Data Provenance for Discriminative Models.
   - **Journal Name:** IET information Security
   - **Status:** Under Review

3. **Zhirui Zeng**, Xiaoxuan Lou, Guowen Xu, Kangjie Chen, Guanlin Li, Jiwei Li, Tianwei Zhang. Zero-shot ShiftNAS: Towards Automatic Generation of Advanced Mulitplication-Less Neural Networks
   - **Status:** Working

👥 Experience

League of Legends Big Data Analysis Platform   Jun. 2020 – Jul. 2020

Role: Participant

Brief introduction: It primarily focuses on the analysis of big data and the visual display of League of Legends. We are conducting demand analysis to determine the functions to be implemented in our project. This includes analyzing and sorting various statistics such as the winning rate, appearance rate, and overall performance of heroes. We also integrate the database with HTML to ensure that the required data for ranking can be displayed on the web page.

- Using Python, we will write a crawler to gather approximately 300,000 records from the domestic Tencent website. These records will include details such as background skins, background stories, locations, Chinese and English names, avatars, etc., of the heroes.

- Analyzing and sorting the crawled game records through RDD, we will analyze the KDA, economy, winning rate, etc., of heroes with the same name.
- By integrating the data of a hero, normalizing it, and then calculating the weighted average, we can determine the hero's ability ranking. We will integrate the database and calculation files, and store the DataFrame obtained through RDD into the database.
- Created a front-end page for visual display.
- The project belongs to Sichuan Huadee Information Technology Co., Ltd.

RNN-Based Urban Natural Gas High-Pressure Pipeline Network Operation Status Risk Assessment System Projects Jun. 2019 – Jul. 2020
Role: Participant

Brief introduction: The pressure data of natural gas pipeline network operation is collected by the monitoring station every 20 minutes, so it has very obvious timing characteristics. Therefore, we choose RNN network to build an assessment system, which uses the pressure data of the first four hours to predict the pressure data of the next time point to judge the risk.

- Investigate previous urban natural gas high-pressure pipeline network operation status risk assessment system methods.
- Participate in the research of modeling the pipeline topology network and train the RNN model using pipeline pressure data.
- Project Number: s201910611368

♡ Honors and Awards

China International Internet + College Student Innovation and Entrepreneurship Competition Gold Medal. Apr. 2023
Scholarship of Chongqing University. Oct. 2022
Scholarship of Chongqing University. Oct. 2021
Third Prize in China College Student Mathematics Competition Nov. 2020

⚙ Skills

- Language: IELTS 6.5(5.5) PTE 58(50)
- Programming Languages: C/C++, Python, Java and Html
- Platform: Linux
- Computer fundamentals: Basic knowledge of deep learning, basic knowledge of natural language processing and basic knowledge of git command
- Personal: Football, Guitar, Sing, Read