Yujun Zhou

Email : yujun3@illinois.edu

Google Scholar: https://scholar.google.com/citations?hl=en&user=B7PGDJcAAAAJ

Tel: 2173058602

Home Page: https://www.yujunzhou.net

EDUCATION

University of Illinois Urbana-Champaign — 09/2023-12/2024
- Master of Science in Information Management; GPA: 4.0
  Courses: Data Mining, Data Visualization, Theory & Prct of Data Cleaning, Data Warehouse and BI

Shanghai University — 09/2018-07/2022
- Bachelor of Science in Economics; GPA: 3.74, 91.25/100.00(Top11.2%)

PUBLICATIONS

- **An Improved Grey Wolf Optimization Algorithm for Heart Disease Prediction**, Sihan Niu, Yifan Zhou, Zhikai Li, Shuyao Huang, and Yujun Zhou, ICAIT 2023 accepted

- **(In Progress) A Framework for Trustworthy Polyp Segmentation via Multi-modal Uncertainty Quantification**, Yujun Zhou, Sihan Niu, Zhikai Li, in progress

PROJECT EXPERIENCE

Leveraging GPU-Accelerated XGBoost for Network Intrusion Detection — Champaign, US
A workshop hosted by NVIDIA — 03/2024
- Applied the XGBoost algorithm to the KDD99 dataset, achieving a near-perfect accuracy score of 99.9823% in classifying network intrusions, which underscores the potential of advanced machine learning techniques.
- Utilized the power of NVIDIA RAPIDS library for processing the KDD99 dataset, which involves different network intrusion types, optimizing the use of GPU capabilities for rapid data handling.
- Exploited GPU parallelism through the RAPIDS suite for swift training and evaluation of the XGBoost model, demonstrating accelerated analytics without sacrificing precision.

Unsupervised Detection with Autoencoders — Champaign, US
A workshop hosted by NVIDIA — 03/2024
- Examined autoencoder efficiency on KDD99, observing mean reconstruction error of 0.004 for normal versus 0.05 for anomalies, signifying successful distinction of patterns.
- Explored the autoencoder's ability to cluster anomalies in the dataset's latent space, suggesting that anomalies with similar features tend to group together, which can be labeled post hoc for further classification accuracy.
- Validated the unsupervised model by comparing cluster labels with actual labels in latent space, affirming that the autoencoder could identify network intrusions without prior label information.

GANs in Anomaly Detection — Champaign, US
A workshop hosted by NVIDIA — 03/2024
- The discriminator's precision in identifying real versus synthetic data improved, evidenced by its ability to assign lower scores to anomalies, a sign of its successful training.
- Sharpened its generation of network data samples to closely mirror authentic traffic patterns, significantly diminishing the discriminator's ability to distinguish between real and fabricated data.
- Utilized ROC curve analysis, an optimal threshold was pinpointed, enabling the accurate separation of normal and anomalous network activities based on a calculated probability score.

An Improved Grey Wolf Optimization Algorithm for Heart Disease Prediction — Champaign, US
A joint student project with Johns Hopkins University and Shanghai University — 09/2023-11/2023
- Employed swarm intelligence algorithms in medical data processing during the summer of 2023, integrating them with neural network backpropagation.
- Discovered and addressed challenges in medical data processing such as rapid and slow gradient descent by incorporating an S-shaped function and the Cauchy operator.
- Applied the enhanced algorithm to the Cleveland Heart dataset, resulting in an 8% increase in accuracy over the original Gray Wolf Algorithm.

A Scar Segmentation System Development — Shanghai, China
Shanghai University and Shanghai Sixth People's Hospital, advised by Xuehai Ding — 04/2021-09/2021
- Established a U-net-based medical image segmentation model based on the realistic images of scar growths of patients obtained in cooperation with the Sixth People's Hospital of Shanghai.

- ○ Added a spatial attention module in jump connections to help the model better focus on lesion areas in images and improve model performance when segmenting and computing scar growth regions in images.
- ○ Collaborated to build an APP with Vue and Django frameworks, and the pages for doctors, patients, and administrators were designed separately.
- ○ Designed an image segmentation back end to achieve real-time calculation of scar area by interacting with back-end information to enable users to get feedback on the results in real-time.

Internship Experience

Fixed Income Department, Guotai Junan Securities — Shanghai, China
Bond Underwriting Assistant — 11/2021-06/2022

- ○ Audited the annual reports of several listed companies, including sections on issuer status, bond matters, and important matters during the reporting period.
- ○ Analyzed the qualities of a company's operations, profitability, and growth prospects over a year from the perspective of its financial position, operating results, and cash flows.
- ○ Collaborated to complete the supplement and update of important information in the prospectus, including the analysis of changes in the financial statements, improvement of the issuer's shareholding structure, main business, corporate governance, use of proceeds and debt service guarantee measures, etc.

Skills Summary

- **Tools**: Vue, Django, JS, Python, Pytorch, R, GIT, Matlab, C++, Stata