Yunuo (Sarah) Hu

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EDUCATION BACKGROUND

Tongji University **Shanghai, CHN**

B.Eng in Computer Science and Technology ***Sep. 2021 - Jun. 2025 (Expected)***

- **Overall GPA:** 4.82/5.00, scored **93.17/95,** major gpa: 4.93/5.00, scored 94.33/95
- **Main Modules:** Artificial Intelligence, Machine Learning, Data Structure, Programming Languages, Algorithm Analysis and Design, Formal Languages and Auromara, Probability and Mathematical Statistics, etc.
- **Relevant Modules:** Discrete Mathematics, Linear Algebra, Advanced Mathematics, Economics, etc.
- **Honors & Awards:** Outstanding Student Scholarship (2021-2022 Top5%, 2022-2023 Top 10%)

RESEARCH EXPERIENCE

Drug Molecules Generation Based on VAE/GAN Models **Shanghai, CHN**

Research Assistant, Supervised by Associate Professor Wengen Li, Tongji University ***Oct. 2023 - Present***

- Explored molecular characteristics of pharmaceutical compounds, utilizing VAE, GAN, and VQGAN models to optimize drug molecule generation efficiency.
- Investigated novel strategies for drug molecule synthesis, experimenting with customized fragment segmentation, combination techniques, and neural network architecture adjustments using VAE, GAN, and VQGAN models.

Category Prediction Based on Text Attributes and Link Relationships **Shanghai, CHN**

Research Assistant, Supervised by Associate Professor Yufei Chen, Tongji University ***Oct. 2023 - Dec. 2023***

- Investigated a fusion of NLP and GNN methodologies, exploring a diverse range of classifiers and integrating them into a unified classifier architecture for enhanced performance.
- Conducted meticulous data preprocessing for both textual and graph data, including standardization, stopword removal, and tokenization, to ensure optimal model efficacy and accuracy.
- Leveraged lightweight text classification models like FastText and GAT, amalgamating their features with advanced techniques such as BERT and GAT to improve accuracy while maintaining computational efficiency.
- Implemented GRAPH-BERT to efficiently process graph data, utilizing subgraph sampling techniques to dissect unlinked structures and uncover deeper insights into graph topology, thereby enhancing the overall analysis capability.

The Impact Path of Provincial Science and Education Levels on Technological Achievement Transformation in China **Shanghai,CHN**

Research Assistant, Supervised by Professor Qinyuan Liu, Tongji University ***Mar. 2023 - May. 2023***

- Implemented a university research assessment framework utilizing the entropy weight method, which normalized data and calculated weights, enabling equitable resource allocation.
- Utilized Gradient Boosting Tree (GBT) models to analyze technology transfer dynamics, identifying key drivers and fostering informed decision-making for collaborative ventures.
- Developed predictive models using the Min-Max-KNN approach to forecast provincial technology transfer capacities, facilitating strategic resource allocation and innovation ecosystem development.

Traffic Object Detection Based on YOLOv5/Paddle **Shanghai, CHN**

Research Assistant, Supervised by Associate Professor Di Zang, Tongji University ***Nov. 2022 - Dec. 2022***

- Spearheaded the development and implementation of advanced data augmentation techniques using the imgaug

library, significantly enhancing model robustness and performance in traffic object detection.

- Led the conversion of the dataset from VOC to YOLOv5 standard format, ensuring seamless integration with the deep learning framework and optimizing model training.
- Optimized data augmentation procedures, resulting in substantial improvements in model accuracy and efficiency for traffic object detection within Tongji University's Jiading campus.

PROJECTS EXPERIENCE

Digital Coach Based on Large-Scale Language Models and AIGC **Shanghai, CHN**

Research Assistant, Supervised by Dr. Junjie Yao, Tongji University ***Mar. 2024 - Present***

- Developed an advanced digital coaching persona using domestically developed language models and AIGC technology for natural language interaction and personalized guidance.
- Utilized innovative AIGC technology to ensure highly natural interactive experiences, reflecting user needs accurately and providing precise guidance.
- Integrated open-source projects to optimize efficiency and interaction quality, showcasing expertise in NLP, deep learning, and ML.
- Conducted in-depth research on language models to support complex dialogue and question answering, demonstrating proficiency in technological solutions for digital coaching.

Lossless Compression and Decompression Unit for ARGB Data Based on FPGA **Shanghai, CHN**

Research Assistant, Supervised by Associate Professor Dongdong Zhang, Tongji University Mar.2023 - Jul.2023

- Developed a lossless compression and decompression unit for ARGB data to enhance access efficiency in GPU or other graphics-intensive memory systems.
- Designed an efficient ARGB data compression and decompression algorithm, achieving an average compression rate of 37.18% and reducing runtime by approximately 50%.
- Translated C language algorithm to Verilog using Vivado HLS, facilitating hardware implementation and optimization.

SKILLS

- Computer Skills: Pytorch, Python, Pytensorflow, Probability and Mathematical Statistics, Natural Language Processing, Machine Learning, Deep Learning, etc.
- English Proficiency: IELTS 7 (Reading 8, Listening 7, Writing 6.5, Speaking 6)