Zhen Yang

21 years old | Male | Personal homepage：https://xi-xiaoran.github.io/
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Education

Nanjing University of Posts and Telecommunications - **Data Science and Big Data Technology** - **Bachelor**
Sep 2022 - Jun 2026

Professional score: GPA 3.9 (top 10% of major)
Major courses: Advanced Programming Language Design (98), Linear Algebra (97), Introduction to Artificial Intelligence (95), C++(94), Algorithm Analysis and Design (94)

Project experience

Research on Trusted Medical Image Segmentation Method for Uncertainty Perception in Open Environment - **person in charge**
May 2024 - May 2025

Research background: An innovative solution for trustworthy medical image segmentation is proposed to address the issue of insufficient processing of boundary blurred regions in existing evidence based deep learning (**EDL**) methods.
Core contribution:
I served as the project leader and proposed the following innovative points, including writing code based on the PyTorch framework and conducting all experiments
1. Progressive Evidence Uncertainty Guided Attention Mechanism (**PEUA**): Based on the uncertainty map, the attention distribution of the model is gradually optimized, and the noise in the attention weights is reduced through low rank learning, significantly enhancing the feature representation ability of difficult areas.
2. Semantic Preserved Evidence Learning Strategy (**SAEL**): proposes a semantic smooth evidence generator and a fidelity enhanced regularization term to effectively avoid the loss of key semantic information in fuzzy regions and improve the semantic consistency of segmentation.
3. Embedding **PEUA** and **SAEL** into the U-KAN framework, an **Evidential U-KAN** model is proposed. Compared with current mainstream methods,**Evidential U-KAN** shows significant advantages in accuracy and reliability.
Achievements:
Patent: "Trusted Medical Image Segmentation Method and Device Guided by Evidence Uncertainty Progressively"
Paper: "Evidential U-KAN for Trustworthy Medical Image Segmentation" by IJCAI, first author
Project Link: https://github.com/xi-xiaoran/Evidential-U-KAN

Analysis and structured output method of substation secondary wiring drawings based on YOLOv5 and OC - **technical director**
Jun 2023 - Mar 2024

Project background: Design an efficient and highly accurate automated analysis and structured output method to accurately convert complex substation power system wiring diagrams into structured Excel data tables, providing reliable support for subsequent data management, analysis, and decision-making.
Core contribution:
1. Constructing an automated drawing parsing and structured output method based on **YOLOv5** and **OCR**, achieving efficient digital processing of complex power system wiring diagrams and significantly improving parsing efficiency.
2. Implement path search algorithms such as **DFS** and **BFS** using **Python**, design and iteratively optimize core pathfinding algorithms, improve algorithm running speed by more than twice, and meet efficient processing requirements.
3. Deeply optimized the post-processing module and fixed key bugs, improving the prediction accuracy from **68.2%** to **91.4%**; Through further analysis and adjustment, an optimization plan was proposed to ultimately achieve a target accuracy rate of **98%**.
4. Write complete project technical documents, communicate with Party A at least **3** times, promptly confirm and implement new requirements, and provide guarantees for the smooth delivery of the project.
Achievements:
The system has successfully passed the demand verification of Jiangsu Provincial Substation, achieving a prediction accuracy of over 98%, meeting the project performance indicators and delivering smoothly, providing strong support for the digital management of the power system.

Internship experience

Bosch - **BSW Development Intern** Jul 2024 - Dec 2024

1、Independently implemented and integrated **RTP**, **RTSP**, and **RTCP** communication protocols in **Python**, ensuring communication link stability and efficiency, and laying a solid foundation for subsequent system development.
2、Conducted data cleaning and analysis of historical Ethernet project data using **Python**, and designed and enhanced the gateway automation system. Reduced system error rate to **0%** through rule standardization.
3、Optimized the **Google Protocol Buffer** lightweight library in depth, achieving comprehensive automated test coverage and addressing edge case issues, improving the library's accuracy from **98.4%** to **100%**.
4、Analyzed real-world scenario data using Python visualization tools such as **Matplotlib** and **Seaborn**, providing critical insights for performance tuning and optimization.
Independently completed the iterative upgrade of the **Gateway** tool module, designing a core parsing algorithm that significantly enhanced the module's error correction capabilities and improved system reliability.
5、Conducted an in-depth study of the **IEEE1588** standard and the **gPTP** protocol, gaining a comprehensive understanding of its core algorithms. Implemented the protocol in **Python** and authored technical documentation to serve as a reference for team members.

Industrial and Commercial Bank of China - **Data Analyst Intern** Jan 2024 - Feb 2024

1、Developed efficient **Python** scripts to process large-scale **Excel** data, performing client data organization, integration, and cleaning.
2、Conducted data preprocessing to improve model input quality, ensuring a stable data foundation for subsequent analysis and modeling.
3、Designed an intelligent loan assessment model based on machine learning algorithms (**KNN**, **Naive Bayes**, **MLP**), achieving **72%** accuracy, significantly enhancing loan decision-making efficiency.
4、Participated in the development of a deep learning-based loan evaluation model, optimizing model performance using real client data and driving the smart transformation of the evaluation process.
5、Utilized **LSTM**, **xLSTM**, **Mamba**, and **Transformer-based** deep learning models to perform time series forecasting on customer behavior data.
6、Analyzed customer behavior trends by integrating real-time dynamic data, providing precise explanations and risk warnings, offering data-driven support and risk control solutions for loan approval.

Self-evaluation

Immediate Availability & Stability: Committed to long-term internships, available for **6+ months**, ensuring continuous and reliable support for the team.
International Exposure & Language Proficiency: Participated in an academic exchange at **University of Cambridge**, with strong English skills in speaking, listening, reading, and writing. Proficient in reading technical literature in English. **IELTS score: 6.5**.
Strong Programming Foundation & Competitive Experience:

- Began programming in middle school with years of coding experience.
- Awarded in multiple competitions, including **NOIP** and **"Lanqiao Cup" National Third Prize** in the first year, as well as **USACO Silver**.

Comprehensive Technical Skills & Deep Learning Expertise:

- Proficient in **MATLAB**, **C**, **C++**, **Python**, and data analysis tools (e.g., **numpy**, **pandas**, **Excel**).
- Deep understanding of mainstream deep learning models with extensive experience in **PyTorch** for model development, covering the entire deep learning pipeline from data preprocessing to model optimization.

Team Collaboration & Organizational Skills:

- Led **National Innovation and Entrepreneurship Program** projects and served as the **Challenge Cup Leader**, successfully organizing and coordinating resources to advance project progress.
- Served as campus ambassador for **ByteDance**, **Baidu Baike**, and **Ruijie Networks**, demonstrating strong cross-department collaboration and project management skills.