Yongliang Miao

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Education

Beijing Normal University and Hong Kong Baptist University United International College — Zhuhai, China
*Expected **Bachelor of Science** (Honours) in **Artificial Intelligence**; Cumulative GPA: **3.47**/4.0* — *Aug 2021 - Now*

Honors and Awards: Dean's List for 3 semesters (2023-2024-1; 2021-2022-2; 2021-2022-1), President's Honour Roll for 3 semesters (2023-2024-2; 2022-2023-2; 2022-2023-1).

Publications

- **Miao, Y.**, Tang, K., Wang, C., Cao, Y. (2024). Learning noisy transition matrix using a neural network. *Applied and Computational Engineering*, **43**, 270–276. Retrieved from https://www.ewadirect.com/proceedings/ace/article/view/10362

Work Experience

Pair City — Shenzhen, China
*Intern in Algorithms, Supervisor: **Dr. Andy Zheng*** — *Dec 2024 - now*

- Keywords: intelligent transportation,urban transportation big data analysis.
- Optimize the recommendation algorithm for driver pickup, considering various practical aspects of the business.
- Design and optimize the company's product, considering user-friendliness and practicality.

Research Experience

Hong Kong University of Science and Technology (Guangzhou) — Guangzhou, China
*Research Assistant, Supervisor: **Prof. Xuming Hu*** — *Jun 2024 - Sep 2024*

- Keywords: multimodal large language models (MLLMs), chain of thought(CoT), hallucination.
- Enhanced the quality of CoT outputs in MLLMs by identifying biases, knowledge gaps, and image recognition errors, and applying targeted fine-tuning.
- Established a benchmark for evaluating the CoT outputs of various MLLMs.
- Achieved a 6% performance improvement for a 7B model, enabling it competitive with numerous larger-scale models.

The Learning and INference Systems (LINs) Laboratory, WestLake University — Hangzhou, China
*Research Assistant, Supervisor: **Prof. Tao Lin*** — *Nov 2023 - Feb 2024*

- Keywords: data distillation, self-supervised learning, meta learning.
- Explored computationally efficient methods for high-performance sequence (multimodal) data distillation, leveraging self-supervised learning and related techniques.
- Developed a comprehensive benchmark for data distillation.

China International Education Institute/Carnegie Mellon University — Beijing, China
*Summer Program Student,Supervisor: **Prof. Pradeep Ravikumar*** — *Jul 2023 - Aug 2023*

- Keywords: contrastive learning, representation Learning.
- Developed and implemented an innovative approach to analyze data distributions,incorporating contrastive learning and a mathematically grounded framework for noise transition matrices.
- Achieved over 85% accuracy, establishing a powerful method for data labeling and self-supervised learning applications.

Course Projects

Deep Learning Course Project — Zhuhai, China
*Project Team Leader, Supervisor: **Prof. Wentao Fan*** — *Feb 2024 - Jun 2024*

- Project name:Filtering and considering key points before responding: Process optimization in RAG
- Designed and implemented a method based on fixed filtering and keypoint extraction for LLMs in RAG medical QA scenarios, integrating reasoning chain optimization to enhance corpus relevance and inference performance.
- Improved accuracy by 5-10% across 7B-34B LLMs with clear relevance to source and generated insights, while maintaining negligible computational overhead.

Big Data Analytics Course Project — Zhuhai, China
*Project Team Leader, Supervisor: **Prof. Zongwei LUO*** — *Sep 2023 - Dec 2023*

- Project name:Twitter sentiment classification under concept drift by using RL-based online strategy
- Designed and implemented a decouple-learning-based online sentiment analysis method, integrating reinforcement learning strategies to enable the model to adapt to dynamic sentiment distributions under concept drift.
- Achieved over 95% accuracy in Twitter sentiment classification.

Technical Skills

- **Programming:** Python (advanced), PyTorch / TensorFlow, Java, JavaScript (for deployment), SQL, Shell Scripting
- **Data Analytics & AI:** Jupyter Notebook, NumPy / Pandas, Matplotlib / Seaborn, PyTorch / TensorFlow
- **Language:** IELTS7.0 / GRE323

Extracurricular Activities

Beijing Normal University-Hong Kong Baptist University United International College Shenzhen, China
Volunteer, University Promotion *Jul 2023 - Aug 2023*

- **commentator**: Volunteered at a university promotional event, leading enrollment outreach efforts at multiple senior high schools.