Yangrui Gong

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EDUCATION

Huazhong University of Science and Technology, China	Sept 2022 - Jun 2026 (expected)
BEng in Electronics and Information Engineering	GPA: 4.16/5.0
University of Wisconsin-Madison, the United States	Jan 2025 - May 2025
Visiting Student	GPA: 4.0/4.0

ACADEMIC EXPERIENCE

University of California, Berkeley - Professor David Whitney's laboratory — May 2025 - Present
Research Assistant — Remote
- Designed a conformal prediction algorithm that incorporates empirical label distributions.
- Our approach achieves an average reduction of 20.27% and 13.57% in prediction set size compared to RAPS and DRAPS, respectively, while maintaining valid coverage.

Texas A&M University - Professor Yu Zhang's laboratory — Jan 2025 - May 2025
Research Internship — Remote
- Designed a zero-shot multi-label text classification framework combining BERT-based retrieval and LLM refinement, outperforming strong embedding-based and generative LM baselines for zero-shot scientific article tagging.
- Demonstrated strong generalization across most metrics using only titles and abstracts, without using full-text or citation information, and showed showed robustness across diverse embedding-based and generative language models.

University of North Carolina at Chapel Hill - Professor Huaxiu Yao's laboratory — May 2024 - September 2024
Research Internship — Remote
- Deploy the RadFM medical foundation model through quantization and assist with building a large-scale benchmark.
- Generate 10k+ QA pairs and develop evaluation and visualization pipelines to assess fairness, robustness, safety, and privacy.
- Third co-author paper accepted to NeurIPS 2024 (D&B track).

Huazhong University of Science and Technology - Professor Xin Yang's laboratory — July 2023 - May 2024
Research Internship — Wuhan, China
- Assist with implementing the Snake Attention (SA) module, the key technical contribution of the paper, which adaptively aggregates vessel features based on vascular morphology.
- Contribute to manuscript revision, data analysis, figure generation, visualization, and code refinement
- Second-author paper accepted to ACM MM 2024.

PUBLICATIONS

Yangrui Gong, Hangxiao Zhu*, Yuyang Bai*, Yu Zhang, **Synergizing Embedding and Generative Language Models for Zero-Shot Multi-Label Text Classification**. (*Equal contribution) *Under Submission*

Yangrui Gong, Zhihang Ren, Yunhui Guo, David Whitney, **RAPS+: Improved Conformal Prediction with Empirical Distribution**. *Under Submission*

Peng Xia, Ze Chen, Juanxi Tian*, **Yangrui Gong***, ..., Jimeng Sun, Zongyuan Ge, Gang Li, James Zou, Huaxiu Yao, **CARES: A Comprehensive Benchmark of Trustworthiness in Medical Vision Language Models**, in **NeurIPS 2024**. (*Equal contribution)

Xiaohuan Ding, **Yangrui Gong**, Tianyi Shi, Zihang Huang, Gangwei Xu, Xin Yang, **Masked Snake Attention for Fundus Image Restoration with Vessel Preservation**, in **ACM MM 2024**.

ACHIEVEMENTS

Rugby Provincial Champion	Won the championship in the second Hubei Provincial Rugby Championship	2024
Study Self-Reliance Scholarship	Achieved excellent grades in the first academic year.	2023
Rugby Provincial Champion	Won the championship in the first Hubei Provincial Rugby Championship	2023

TECHNICAL SKILLS

Programming languages: Python, Java, C   **ML/AI:** Pytorch, Numpy, Scipy
Research skills: Git, Tmux, Latex

RELEVANT COURSES

Computer Science: Deep Learning, Data Structures and Algorithms, Principles of Computer Organization
Mathematics: Probability and Random Processes, Number Theory, Linear Algebra
Courses in UW-Madison: LIS501-Introduction to Text Mining, ECE539-Introduction to Artificial Neural Networks