Rongkun Zhou

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EDUCATION

Johns Hopkins University – Whiting School of Engineering   GPA：3.73/4.00   **Baltimore, MD**
Master of Science in Engineering in Computer Science   *Aug.2024 - Dec.2025*

University of Minnesota - Twin Cities   GPA：3.75/4.00   **Minneapolis, MN**
Bachelor of Science in Mathematics, Minor in Computer Science & Statistics   *Sept. 2020 - Dec. 2023*
Honors: Dean's List for Fall 2020, Spring 2021, Fall 2022

PUBLICATIONS

1. W. Walden, K. Ricci, M. Wanner, Z. Jiang, C. May, **R. Zhou**, *and B. Van Durme, "How Grounded is Wikipedia? A Study on Structured Evidential Support"* arXiv preprint arXiv:2506.12637, 2025.

2. **R. Zhou**, *"Single Cell Morphology and Dynamic Signal Analysis Based on U-Net and DeepCell"*, published in IEEE International Conference on Image Processing and Computer Applications (ICIPCA 2023)

3. **R. Zhou**, *"Research on Engineering Project Schedule Optimization Method Based on HRRN"*, published in IEEE 2023 International Conference on Electronics and Devices, Computational Science (ICEDCS 2023)

RESEARCH EXPERIENCE

Johns Hopkins University (Center for Language and Speech Processing)   **Baltimore, MD**
Research Assistant to Prof. Philip Koehn   *Jul. 2025 - Present*

Table Reasoning over Scientific Articles

- Aim to build a benchmark for multi-step table reasoning over scientific articles, developing and optimizing LLM and tool-augmented reasoning approaches based on RL-driven code generation to integrate neural reasoning with symbolic execution.
- Retrieved arXiv cs.AI/cs.CL papers and extract/normalize tables (CSV/JSON), unified schemas and curate a pilot corpus for high-quality annotation and evaluation.
- Author complex questions (join/filter/group/aggregation/arithmetic across tables) with manually verified and executable gold answers to ensure objective evaluation.
- Constructed a rigorous, reproducible neural–symbolic evaluation bed for scientific table reasoning, which enables more trustworthy scientific QA and could furthermore reduce hallucination risk via executable supervision.

Johns Hopkins University (Human Language Technology Center of Excellence)   **Baltimore, MD**
Research Assistant to Research Scientist William Gantt Walden   *May. 2025 - Present*

Reasoning Transfer in LLMs via Chain-of-Thought Supervision

- Investigated how CoT traces of large models across diverse tasks, including math word problems (GSM8K), science QA (GPQA), and logical reasoning (AQUA-RAT), can be used as references to enhance the performance of smaller models.
- Implemented a DSPy-based framework to embed and extract hidden signals within CoT reasoning traces and conducted systematic evaluation across these benchmarks.
- Built automated pipelines for payload injection and detection, including intra-dataset comparisons and semantic evaluation against Claude-4 outputs.
- Proposed two methods: inference-time guidance and training-time distillation to leverage the large model's reasoning traces.
- Evaluated reasoning transfer across LLMs (e.g. GPT-OSS-20B, LLaMA-3.1-8B, LLaMA-3.3-70B, and GPT-5-mini), analyzing how performance scales with model size and reasoning complexity.
- Our work aims to submit to ACL 2026, demonstrating how reasoning transfer methods provide new insights into leveraging CoT for improving efficiency and accuracy in smaller models.

Johns Hopkins University (Whiting School of Engineering)   **Baltimore, MD**
Research Assistant to Prof. Benjamin Van Durme   *Mar. 2025 - Jun. 2025*

Evidential Support Analysis in Wikipedia Biography Articles

- Created a benchmark dataset of ~150K annotated claims across 1,485 articles for evidential retrieval evaluation. With the constructed dataset, we explored the extent to which Wikipedia biographical claims are supported by cited sources,
- Conducted BM25 retrieval experiments and systematic parameter evaluation across multiple configurations on this dataset. Designed and implemented body-to-lead and source-to-body evidence identification tasks, generating evaluation metrics with trec_eval to assess retrieval performance across query types and evidence complexity.
- Extended the framework by implementing forward methods for three dense retrievers (Inf-Retriever, NV-Embed, Ling-AI), which enables comprehensive comparative analysis of retrieval approaches for evidence verification.
- Co-authored research published on arXiv:2506.12637, revealing that 19.3% of lead claims and 26.5% of body claims lack explicit textual support. Our work establishes the first large-scale quantitative assessment of Wikipedia's evidential reliability and exposes significant problems of those NLP systems whose trustworthiness relies on Wikipedia as a knowledge source.

University of Minnesota, Twin Cities (College of Science & Engineering)   **Minneapolis, MN**
Independent Research   *Jan. 2023 - Apr. 2023*

Single Cell Morphology and Dynamic Signal Analysis Based on U-Net and DeepCell

- Proposed a label-free computational framework for single-cell morphology segmentation and dynamic signal analysis, addressing the limitations of marker-based approaches that disrupt cell activity and obscure morphological features.
- Developed a robust single-cell morphology segmentation model utilizing U-Net, which can accurately extracted morphological information without requiring fluorescence labeling or cell fixation.
- Designed a DeepCell-based signal-tracking model to eliminate inter-cell interference, enabling precise identification and quantitative analysis of signals by leveraging morphological similarity and motion continuity.
- Developed integrated label-free analysis framework and validated it through theoretical analysis and preliminary testing, contributing to automated single-cell phenotyping methodologies for biological research applications.
- Work published in IEEE ICIPCA 2023, advancing computational approaches for morphology-driven cell analysis with potential applications in cancer metastasis studies, drug screening assays, and stem cell differentiation tracking.

University of Minnesota, Twin Cities (College of Science & Engineering)   **Minneapolis, MN**
Independent Research   *Dec. 2022 - Feb. 2023*

Project Schedule Optimization Method Based on HRRN
- Proposed and developed a multi-objective mixed integer programming (MIP) framework to address scheduling optimization challenges in resource-constrained environments (e.g., manufacturing workflows and software development cycles.).
- Designed a Monte Carlo simulation-based risk assessment strategy to evaluate uncertainty factors that are common in various engineering implementations such as weather delays, equipment failures, and workforce availability variations.
- Constructed HRRN-based dynamic priority calculation model to integrate both temporal urgency and resource requirements, enabling balanced scheduling decisions for complex project networks with interdependent tasks.
- Work published in IEEE ICEDCS 2023, contributing to the field by proposing a MIP framework that is applicable to settings where traditional scheduling approaches fail to handle dynamic constraints effectively.

INTERNSHIP EXPERIENCE

BIGO LIVE   **Guangzhou, China**
Advertise Algorithm Engineer Intern   *Jun. 2024 - Aug.2024*
- Optimized advertising recall and ranking models using DeepFM and Gradient Boosting, increasing ad click-through rates (CTR) and driving business growth through improved ad targeting.
- Analyzed user-generated content with RoBERTa, extracting insights that improved ad personalization and relevance, leading to a 13% increase in user engagement.
- Analyzed user behavior data using sequence models (RNNs) and multi-objective optimization algorithms, enhancing the accuracy of recall and ranking systems.
- Addressed traffic exploration and stability issues by implementing A/B testing frameworks and monitoring system performance, providing solutions that improved overall delivery reliability.
- Explored extensive research on transfer learning and integrated pre-trained LLMs (e.g. GPT, LLaMA), improving algorithm performance by using data augmentation and data enhancement techniques.

Accenture   **Hong Kong, China**
Data Science Intern   *Mar. 2023 - May 2023*
- Built a time series forecasting pipeline using XGBoost to predict market trends in the green energy sector, providing insights that supported client strategic decisions.
- Utilized clustering algorithms (K-means, hierarchical clustering) to segment customer data, identifying key demographics and helping tailor marketing strategies to target high-potential customer segments.
- Performed detailed analysis of renewable energy projects using multi-criteria decision analysis (MCDA), developing a scoring system to evaluate project feasibility and investment potential.
- Applied CatBoost and gradient boosting models to predict equipment failures and maintenance needs, reducing equipment downtime by 12% and improving overall operational efficiency.

Microsoft   **Beijing, China**
Machine Learning Intern   *Dec. 2022 - Feb. 2023*
- Developed and optimized a classification model using LightGBM on Windows Defender data (4.3GB) to predict the presence of computer viruses, applying feature engineering, dimensionality reduction, and evaluating performance using standard metrics (accuracy, precision, recall).
- Applied pre-trained BERT to analyze customer service transcripts, identifying common issues and improvements in customer support workflows, leading to a 17% increase in customer satisfaction.
- Implemented forecasting pipelines using LSTM for sequential system log analysis to predict failures, improving preventive maintenance strategies and cutting system outages by 8%.

EXTRACURRICULAR ACTIVITIES

Teaching Assistant   **Minneapolis, MN** *Sept.2022 - Dec.2023*
- Led weekly discussion sections for applied linear algebra class, fluently communicated with 30 students, and resolved their questions through step-by-step explanations during office hours.
- Taught problem-solving classes and received positive student evaluations for clear and easy-to-understand teaching style.

SKILLS

- Programming Languages: Python, C/C++, Java, R, SQL
- *Tools & Libraries: PyTorch, TensorFlow, HF, LLMs and ML-relevant libraries, Docker, SLURM, Linux, LaTeX, Tableau*