

Rongkun Zhou

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EDUCATION

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| Johns Hopkins University – Whiting School of Engineering <i>Master of Science in Engineering in Computer Science</i> | GPA: 3.73/4.00 | Baltimore, MD <i>Aug. 2024 - Dec. 2025</i> |
| University of Minnesota - Twin Cities <i>Bachelor of Science in Mathematics, Minor in Computer Science & Statistics</i> | GPA: 3.75/4.00 | Minneapolis, MN <i>Sept. 2020 - Dec. 2023</i> |
| 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

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

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| Johns Hopkins University (Human Language Technology Center of Excellence) <i>Research Assistant to Research Scientist William Gantt Walden</i> | Baltimore, MD <i>May. 2025 - Present</i> |
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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 reasoning traces 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.

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

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| University of Minnesota, Twin Cities (College of Science & Engineering) <i>Independent Research</i> | Minneapolis, MN <i>Jan. 2023 - Apr. 2023</i> |
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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 extract 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