# Rui(Ray) Qiu

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# in rui-qiu | 🖓 RyanQ96 | Ġ Rui Qiu

# **RESEARCH FOCUS**

Deep learning, Human-centered Visual Design, Data Visualization, LLM-based agents, Multi-modal LLM

#### **EXPERIENCE**

#### Brookhaven National Lab

Visiting Scholar

• Research on applied explainable AI (XAI) techniques to analyze data attribution and interpret the model's reasoning, with a focus on explaining implicit neural representations derived from training data, enhancing transparency in decision-making.

#### The Ohio State University

Graduate Research Associate

- Researched on developing visualization and visual mapping algorithms to visualize corpus space with multiple objectives; Designed effective visual layouts and intuitive interactions to support domain-specific information-seeking needs.
- Designed and built a visual programming-based system to modularize the literature review process, incorporating intuitive visualization and interaction for a streamlined user experience.
- Researched on multi-modal language model integrating text, image, and gene modalities to support biology domain scientists in answering complex research questions.
- Researched on explainable AI, analyzing data attribution and investigating factors influencing model-generated answers, improving transparency and interpretability of large language models.

#### • The Ohio State University

Instructor - Graduate Teaching Assistant

• Instructor of CSE 2221 Software Design I (core class of CSE undergraduate) for seven semesters. Responsible for teaching lectures, hosting labs and office hours. Received average SEI 4.6/5.

#### • Institute for Informatics, Washington University School of Medicine

Research Intern & Research Engineer

- Led development and research on the VoiceConnect project, building a multi-hop interaction language model and enhancing system security in a DynamoDB environment for clinician supply retrieval.
- Designed and implemented memory mechanisms for a voice assistant's question-answer system using session variables in the VoiceConnect-S Project.
- Developed the DoxCompass (https://doxcompass.web.app/) knowledge retrieval system for systematic review, integrating keyword extraction, clustering, and data visualization, while optimizing performance on Google Cloud with a modularized backend.

# **EDUCATION**

## • The Ohio State University Ph.D. in Computed Science (Visualization and Computer Graphics) • GPA: 3.90/4.00

- Washington University in St. Louis Master of Science in Finance: Quantitative Finance • Grade: 3.86/4.00
- Tianjin University of Finance and Economics Bachelor of Science in Mathematics
  - GPA: 3.85/4.00

August 2020 - Now Columbus, Ohio

July 2018 - Dec 2019 St. Louis, Missouri

August 2014 - June 2018 Tianjin, China

*May* 2024 - *September* 2024

May 2024 - Now

August 2021 - May 2024

August 2019 - August 2020

# **PUBLICATIONS**

- [1] Qiu, Rui, Shijie Chen, Yu Su, Po-Yin Yen, Han-Wei Shen. "Completing A Systematic Review in Hours instead of Months with Interactive AI Agents." In the Annual Conference of the Association for Computational Linguistics, 2025 (ACL'25).
- [2] Wei Xu, **Qiu**, **Rui**, Han-Wei Shen, et al. "Extending Two Explainable Artificial Intelligence Methods for Deep Climate Emulators" In Proceedings of the International Conference on Learning Representation (ICLR 2025) Tackling Climate Change with Machine Learning Workshop.
- [3] **Qiu, Rui**, Yamei Tu, Po-Yin Yen, and Han-Wei Shen. "VADIS: A Visual Analytics Pipeline for Dynamic Document Representation and Information-Seeking." IEEE Transactions on Visualization and Computer Graphics (2024). (Best Paper Award at IEEE VIS 2024)
- [4] Tu, Yamei, **Rui Qiu**, and Han-Wei Shen. "KG-PRE-view: Democratizing a TVCG Knowledge Graph through Visual Explorations." In 2024 IEEE 17th Pacific Visualization Conference (PacificVis), pp. 162-171. IEEE, 2024.
- [5] Tu, Yamei, Xiaoqi Wang, Rui Qiu, Han-Wei Shen, Michelle Miller, Jinmeng Rao, Song Gao et al. "An interactive knowledge and learning environment in smart foodsheds." IEEE Computer Graphics and Applications 43, no. 3 (2023): 36-47.
- [6] Qiu, Rui, Yamei Tu, Yu-Shuen Wang, Po-Yin Yen, and Han-Wei Shen. "DocFlow: A visual analytics system for question-based document retrieval and categorization." IEEE Transactions on Visualization and Computer Graphics 30, no. 2 (2022): 1533-1548.
- [7] Tu, Yamei, Rui Qiu, Yu-Shuen Wang, Po-Yin Yen, and Han-Wei Shen. "PhraseMap: Attention-based keyphrases recommendation for information seeking." IEEE Transactions on Visualization and Computer Graphics 30, no. 3 (2022): 1787-1802.
- [8] Rui Qiu. Research on the Warning Model of Health Care Fraud Based on Frequent Pattern Mining Algorithm", Industrial & Science Tribune 16.17, 2017:62-64.

### SKILLS

- Programming Languages: Python, Java, JavaScript, C++
- Visualization and Front-end Technologies: D3, Vue, WebGL
- Machine Learning& Deep Learning: Pytorch

#### HONORS AND AWARDS

- Best Paper Award at IEEE VIS 2024 The IEEE Visualization Conference 2024 (IEEE VIS 2024)
- Graduate Teaching Award The Ohio State University
  - $\circ$  Brief description of the award and its significance

Oct 2024

May 2023