YAO RONG

O'Connor Room 473, Rice University, 6100 Main St, Houston, TX 77005

CONTACT INFORMATION

Postdoctoral Associate, Department of Computer Science, Rice University
Homepage: https://yaorong0921.github.io/homepage/
Email: yao.rong@rice.edu
Google Scholar: Google Scholar/Yao Rong

RESEARCH INTERESTS

My research focuses on **Trustworthy AI** by building **actionable XAI** (Explainable AI) that helps users understand model behavior, identify problems, and determine how to improve the AI system. My work is structured around three pillars: (1) designing explanations aligned with human cognition to enhance understanding and verification of model behavior; (2) operationalizing explanations to support auditing model weaknesses at scale; and (3) using human feedback on model explanations to enhance model performance. I extend these principles to Generative AI (**LLMs**) to enable effective *human-AI collaboration* in educational and healthcare applications.

EDUCATION

Technical University of Munich, Germany — *April 2023 – July 2024*
Ph.D., Computer Science — Advisor: Prof. Dr. Enkelejda Kasneci

University of Tübingen, Germany — *September 2019 – March 2023*
Ph.D. Candidate, Computer Science (Transfer Out) — Advisor: Prof. Dr. Enkelejda Kasneci

Technical University of Munich, Germany — *October 2016 – June 2019*
M.Sc., Electrical and Computer Engineering

Tongji University, China &
Munich University of Applied Sciences, Germany — *September 2012 – September 2016*
B.Eng., Mechatronics *(Dual-degree)*

AWARDS & GRANTS

- **EECS Rising Star** at MIT, 2025
- **Future Faculty Fellow** at Rice University School of Engineering and Computing, 2025 – 2026
- **Rice Academy of Fellows** (Two-year Fellowship), 2024
- TUM Seed Fund for the coordination of EU projects, Munich, Germany, 2023
- Travel grant from Cluster of Excellence – Machine Learning, Tübingen, Germany, 2022
- First Prize of the Undergraduate Student Design Competition of Electrical System, Delphi Technologies, China, 2015
- Student Scholarships awarded by Tongji University, China, 2013 – 2015

PUBLICATIONS

[IEEE TLT'25] **Yao Rong**, Katharina Seßler, Ekin Gözlüklü, and Enkelejda Kasneci. "Benchmarking In-Context Learning Strategies of Large Language Models for Math Reasoning Tasks." *IEEE Transactions on Learning Technologies.*

[AAAI RDS'26] **Yao Rong**, Shuo Yang, Gjergji Kasneci, Enkelejda Kasneci. "Synthetic Data Generation with LLMs through Strategic Comparisons." In *RDS @ AAAI.*

[AAAI (Spring Symposia)'25] **Yao Rong** and Vaibhav Unhelkar. "The Need for Human-AI Collaborative Methods for Conducting Audits of Machine Learning Models." In *AAAI Spring Symposium Series.*

[TKDD'24] **Yao Rong**, Guanchu Wang, Qizhang Feng, Ninghao Liu, Zirui Liu, Enkelejda Kasneci, and Xia Hu. "Efficient GNN Explanation via Learning Removal-based Attribution." In *ACM Transactions on Knowledge Discovery from Data.*

[xAI'24] **Yao Rong**, David Scheerer, and Enkelejda Kasneci. "Faithful Attention Explainer: Verbalizing Decisions Based on Discriminative Features." In *Proceedings of the 2nd World Conference on eXplainable Artificial Intelligence.*

[AAAI'24] **Yao Rong**, Peizhu Qian, Vaibhav Unhelkar, and Enkelejda Kasneci. "I-CEE: Tailoring Explanations of Image Classification Models to User Expertise." In *AAAI Conference on Artificial Intelligence.*

[ACL Findings'24] Shuo Yang, Chenchen Yuan, **Yao Rong**, Felix Steinbauer, and Gjergji Kasneci. "P-TA: Using Proximal Policy Optimization to Enhance Tabular Data Augmentation via Large Language Models." In *Findings of the Association for Computational Linguistics.*

[ETRA'24] Süleyman Özdel, **Yao Rong**, Berat Mert Albaba, Yen-Ling Kuo, Xi Wang, and Enkelejda Kasneci. "Gaze-Guided Graph Neural Network for Action Anticipation Conditioned on Intention." In *Proceedings of the ACM Symposium on Eye Tracking Research and Applications.*

[ETRA'24] Süleyman Özdel, **Yao Rong**, Berat Mert Albaba, Yen-Ling Kuo, Xi Wang, and Enkelejda Kasneci. "A Transformer-Based Model for the Prediction of Human Gaze Behavior on Videos." In *Proceedings of the ACM Symposium on Eye Tracking Research and Applications.*

[TPAMI'23] **Yao Rong**, Tobias Leemann, Thai-Trang Nguyen, Lisa Fiedler, Peizhu Qian, Vaibhav Unhelkar, Tina Seidel, Gjergji Kasneci, and Enkelejda Kasneci. "Towards Human-Centered Explainable AI: User Studies for Model Explanations." In *IEEE Transactions on Pattern Analysis and Machine Intelligence.*

[NeurIPS XAI'23] Tobias Leemann, **Yao Rong**, Thai-Trang Nguyen, Enkelejda Kasneci, and Gjergji Kasneci. "Caution to the Exemplars: On the Intriguing Effects of Example Choice on Human Trust in XAI." In *XAI in Action @ NeurIPS.*

[CVPRW'23] **Yao Rong**, Xiangyu Wei, Tianwei Lin, Yueyu Wang, and Enkelejda Kasneci. "DynStatF: An Efficient Feature Fusion Strategy for LiDAR 3D Object Detection." In *IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops.*

[UAI'23] Tobias Leemann, Michael Kirchhof, **Yao Rong**, Enkelejda Kasneci, and Gjergji Kasneci. "When are Post-hoc Conceptual Explanations Identifiable?" In *Conference on Uncertainty in Artificial Intelligence.*

[ICML'22] **Yao Rong**, Tobias Leemann, Vadim Borisov, Gjergji Kasneci, and Enkelejda Kasneci. "A Consistent and Efficient Evaluation Strategy for Attribution Methods." In *International Conference on Machine Learning.* **(Spotlight)**

[PACMHCI'22] **Yao Rong**, Naemi-Rebecca Kassautzki, Wolfgang Fuhl, and Enkelejda Kasneci. "Where and What: Driver Attention-based Object Detection." In *Proceedings of the ACM on Human-Computer Interaction.*

[CHI TRAIT'22] **Yao Rong**, Nora Castner, Efe Bozkir, and Enkelejda Kasneci. "User Trust on an Explainable AI-Based Medical Diagnosis Support System." In *TRAIT Workshop at the ACM Conference on Human Factors in Computing Systems.*

[BMVC'21] **Yao Rong**, Wenjia Xu, Zeynep Akata, and Enkelejda Kasneci. "Human Attention in Fine-Grained Classification." In *British Machine Vision Conference.*

[ITSM'21] **Yao Rong**, Chao Han, Christian Hellert, Antje Loyal, and Enkelejda Kasneci. "Artificial Intelligence Methods in In-Cabin Use Cases: A Survey." In *IEEE Intelligent Transportation Systems Magazine.*

[ITSC'20] **Yao Rong**, Zeynep Akata, and Enkelejda Kasneci. "Driver Intention Anticipation Based on In-Cabin and Driving Scene Monitoring." In *IEEE International Conference on Intelligent Transportation Systems.*

[FG'20] Okan Köpüklü, Thomas Ledwon, **Yao Rong**, Neslihan Kose, and Gerhard Rigoll. "Drivermhg: A Multi-Modal Dataset for Dynamic Recognition of Driver Micro Hand Gestures and a Real-Time Recognition Framework." In *IEEE International Conference on Automatic Face and Gesture Recognition.*

[ICCVW'19] Okan Köpüklü, **Yao Rong**, and Gerhard Rigoll. "Talking with Your Hands: Scaling Hand Gesture Recognition with CNNs." In *IEEE/CVF International Conference on Computer Vision Workshops.*

Preprint and Under Review

[Under Review'25] Harrison Huang, **Yao Rong**, Peizhu Qian, and Vaibhav Unhelkar. "OOPS: Out-of-Distribution Policy Summarization." **Under Review.**

[Under Review'25] **Yao Rong** and Vaibhav Unhelkar. "Formalizing Audits of ML Models as a Sequential Decision-Making Problem." **Under Review.**

[Preprint'24] Zilong Zhao, **Yao Rong**, Dongyang Guo, Emek Gözlüklü, Emir Gülboy, and Enkelejda Kasneci. "Stepwise Self-Consistent Mathematical Reasoning with Large Language Models." *arXiv Preprint.*

[Preprint'24] Enkelejda Kasneci, Hong Gao, Suleyman Ozdel, Virmarie Maquiling, Enkeleda Thaqi, Carrie Lau, **Yao Rong**, Gjergji Kasneci, Efe Bozkir. "Introduction to eye tracking: A hands-on tutorial for students and Practitioners." *arXiv Preprint.*

INVITED TALKS

Seminar, Computer Science Department, University of Houston *2025*
Title: "Actionable XAI for Understanding, Auditing, and Improving Models."

Chair of Hardware for Artificial Intelligence, Technical University of Darmstadt, Germany *2025*
Title: "Actionable XAI for Understanding, Auditing, and Improving Models."

Chair of Psychology of Action and Automation, Technical University of Berlin, Germany *2025*

Title: "Human Factors in Interpretable AI."

ECE Department, Leibniz University Hannover, Germany (Virtual) *2025*
Title: "Human-Centered Explainability: Bringing AI Closer to Human Reasoning."

Samsung Electronics America, Monthly Machine Learning Forum (Virtual) *2024*
Title: "Human-Centered Explainability: Bringing AI Closer to Human Reasoning."

Graduate Research Seminar in Machine Learning, Rice University *2024*
Title: "Promoting Human-Centered AI by Integrating Human Factors into Model Design."

TEACHING EXPERIENCE

Guest Lecturer, Department of Data Science, Rice University *Spring 2025*
Lecture: "Artificial Intelligence."

Guest Lecturer, Department of Psychological Sciences, Rice University *Fall 2024*
Lecture: "Human-Computer Interaction."

Instructor, Department of Educational Sciences, Technical University of Munich *Summer 2024*
Seminar: "Recent Advances in Human-Computer Interaction."

Instructor, Department of Educational Sciences, Technical University of Munich *Summer 2024*
Lecture-Tutorial: "Learning through Digitally Supported Instructional Designs."

Instructor, Department of Educational Sciences, Technical University of Munich *Fall 2023*
Lecture-Tutorial: "Human-AI Interaction."

Instructor, Department of Computer Science, University of Tübingen *Fall 2022*
Lecture-Tutorial: "Human-AI Interaction."

Instructor, Department of Computer Science, University of Tübingen *Fall 2021*
Seminar: "Advanced Topics in Human-Computer Interaction."

Instructor, Department of Computer Science, University of Tübingen *Fall 2020*
Seminar: "Introductory Topics in Human-Computer Interaction."

Guest Lecturer, Department of Computer Science, University of Tübingen *Fall 2020*
Lecture: "Multimodal Human-Computer Interaction."

SELECTED MENTORSHIP

Ph.D. Student
Harrison Huang, Rice University *2025 – Present*
Project: Interpreting Reinforcement Learning Policies through Explainable AI

Graduate Students
Janhavi Sathe, Rice University *March 2025 – May 2025*
Project: User Study on Machine Learning Application Audits

Mary Nam, Rice University *November 2024 – January 2025*
Project: Interpreting Saliency Maps using Multimodal Language Models

Isabel Schorr and Mira Trouvain, Technical University of Munich *January 2024 – June 2024*
Project: Simulating Human-Centered User Experience in XAI using LLMs

Thai Trang Nguyen, University of Tübingen *January 2023 – June 2023*
Project: Model Faithfulness and Preconceptions in Subjective Ratings of Explanations

Jacqueline Hirch, University of Tübingen *June 2022 – December 2022*
Project: Improving Interactive Medical Support System Performance with Knowledge Distillation

Naemi-Rebecca Kassautzki, University of Tübingen *January 2022 – June 2022*
Project: Driver Attention-Based Object Detection

David Scheerer, University of Tübingen *May 2021 – December 2021*
Project: Faithful Attention Explanation: Verbalizing Classification Decisions Based on Model Explanation

Undergraduate Students
Mohammed Abbas Ansari, India *March 2024 – July 2024*
Project: Semi-Supervised Learning Techniques for Scanpath Prediction

Carolin Niedermaier, Claudia Guadarrama Serrano, Letizia Wörrlein, Shaoming Zhang, Franka Exner, and Xufan Lu,
Technical University of Munich *2024*
Project: Designing Human–AI Interaction for Speech-Based Educational Applications

Thai Trang Nguyen, University of Tübingen *May 2020 – December 2020*
Project: Human Attention in Fine-Grained Classification

RESEARCH EXPERIENCE

Postdoctoral Fellow, Rice University *September 2024 – August 2026*
Project: Enhancing Efficiency and Trustworthy Collaboration Between Humans and AI.
Mentor: Dr. Vaibhav Unhelkar

Visiting Scholar, Rice University *September 2022 – February 2023*
Project: Efficient Graph Neural Network Explanation Generation.
Mentor: Prof. Dr. Xia Hu

Collaborative Researcher, University of Tübingen *September 2020 – June 2021*
Project: Human Attention in Fine-grained Classification Tasks.
Mentor: Prof. Dr. Zeynep Akata

ACADEMIC SERVICES

Organizing Committee:

- Co-Chair, Session on Equity in Distributed Digital Education, German-American Frontiers of Engineering Symposium, 2025
- Organizer, Workshop *GenEAI: Generative AI Meets Eye Tracking*, 2025
- Diversity & Accessibility Chair, ACM Symposium on Eye Tracking Research and Applications (ETRA), 2022 – 2025.

Program Chair:
ACM Symposium on Eye Tracking Research and Applications (ETRA), 2024 – 2025.

Student Advisory Service: Department of Computer Science, University of Tübingen, 2020 – 2022.

Program Committee Member/Reviewer:
Conferences: ICML, NeurIPS, ICLR, AISTATS, WACV, AAAI, ACM MM, CHI, HRI, etc.
Journals: TNNLS, T-IV, IJHCI, ACM Computing Surveys, Information Systems Frontiers, etc.