Bingsheng "Arthur" Yao

Postdoctoral Associate in CAMD at Northeastern University

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𝖌 Google Scholar ⌨ www.bingshengyao.com

Research Focus	My research interests lie at the intersection of **NLP** and **HCI**. My primary focus is to **actively enhance machine reasoning with human rationales.** I further commit to investigate and address **real-world human needs** across a range of professional domains, with the ultimate goal of fostering **human-centered AI collaborations.**

Employment

Postdoc Research Associate (PI: Prof. Dakuo Wang)
Northeastern University
📅 Feb 2024 - Current

Education

Ph.D. in Computer Science (Advisor: Prof. Jim Hendler)
Rensselaer Polytechnic Institute
📅 Sep 2019 - Jan 2024

MS in Information Technology and Web Science
Rensselaer Polytechnic Institute
📅 Sep 2018 - May 2019

BS in Computer System Engineering
Rensselaer Polytechnic Institute
📅 Sep 2014 - May 2018

Grant

NSF SCH 📅 Pending
"Improving Early Prediction and Decision-Making for Sepsis with Human-AI Collaboration", (PI: Prof. Ping Zhang from Ohio State University, **My Role: Writing Thrust 3&4**, Total: $1,200,000)

NSF ReDDDoT Phase 1 📅 In Submission
"Responsible design, development, and deployment of an LLM-based collaborative care support system for remote patient monitoring of older adults", (PI: Prof. Zhan Zhang from Pace University, **My Role: Co-PI**, Total: $300,000)

NIH R21 📅 In Submission
"Improving Well-Being of Older Adults with Alzheimer and Mild Cognitive Impairment (MCI) via Digital Phenotyping and LLMs", (PI: Prof. Varun Mishra from Northeastern University, **My Role: Writing Aim 2**, Total: $275,000)

Publications

[P.13] More Samples or More Prompt Inputs? Exploring Effective In-Context Sampling for LLM Few-Shot Prompt Engineering
Bingsheng Yao, Guiming Chen, Ruishi Zou, Yuxuan Lu, Jiachen Li, Shao Zhang, Sijia Liu, James Hendler, Dakuo Wang
NAACL 2024 Findings

[P.12] Talk2Care: An LLM-based Voice Assistant for Communication between Healthcare Providers and Older Adults
Ziqi Yang, Xuhai Xu, **Bingsheng Yao**, Shao Zhang, Ethan Rogers, Stephen Intille, Nawar Shara, Dakuo Wang
IMWUT 2024

[P.11] Mental-LLM: Leveraging Large Language Models for Mental Health Prediction via Online Text Data
Xuhai Xu, **Bingsheng Yao**, Yuanzhe Dong, Saadia Gabriel, Hong Yu, James Hendler, Marzyeh Ghassemi, Anind K Dey, Dakuo Wang
IMWUT 2024

Publications

[P.10] "It's a Fair Game", or Is It? Examining How Users Navigate Disclosure Risks and Benefits When Using LLM-Based Conversational Agents
Zhiping Zhang, Michelle Jia, Hao-Ping (Hank) Lee, **Bingsheng Yao**, Sauvik Das, Ada Lerner, Dakuo Wang, Tianshi Li
CHI 2024

[P.9] Rethinking Human-AI Collaboration in Complex Medical Decision Making: A Case Study in Sepsis Diagnosis
Shao Zhang, Jianing Yu, Xuhai Xu, Changchang Yin, Yuxuan Lu, **Bingsheng Yao**, Melanie Tory, Lace M. Padilla, Jeffrey Caterino, Ping Zhang, Dakuo Wang
CHI 2024

[P.8] Beyond Labels: Empowering Human with Natural Language Explanations through a Novel Active-Learning Architecture
Bingsheng Yao, Ishan Jindal, Lucian Popa, Yannis Katsis, Sayan Ghosh, Lihong He, Yuxuan Lu, Shashank Srivastava, James Hendler, Dakuo Wang
EMNLP 2023 Findings

[P.7] `Don't Get Too Technical with Me': A Discourse Structure-Based Framework for Automatic Science Journalism
Ronald Cardenas, **Bingsheng Yao**, Dakuo Wang, Yufang Hou
EMNLP 2023

[P.6] Are Human Explanations Always Helpful? Towards Objective Evaluation of Human Natural Language Explanations
Bingsheng Yao, Prithviraj Sen, Lucian Popa, James Hendler, Dakuo Wang
ACL 2023 Oral Presentation

[P.5] StoryBuddy: A Human-AI Collaborative Chatbot for Parent-Child Interactive Storytelling with Flexible Parental Involvement
Zheng Zhang*, Ying Xu*, Yanhao Wang, **Bingsheng Yao**, Daniel Ritchie, Tongshuang Wu, Mo Yu, Dakuo Wang, Toby Jia-Jun Li
CHI 2022 - Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems

[P.4] Fantastic Questions and Where to Find Them: FairytaleQA -- An Authentic Dataset for Narrative Comprehension
Ying Xu*, Dakuo Wang*, Mo Yu*, Daniel Ritchie*, **Bingsheng Yao***, Tongshuang Wu, Zheng Zhang, Toby Jia-Jun Li, Nora Bradford, Branda Sun, Tran Bao Hoang, Yisi Sang, Yufang Hou, Xiaojuan Ma, Diyi Yang, Nanyun Peng, Zhou Yu, Mark Warschauer
ACL 2022 - Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)

[P.3] It is AI's Turn to Ask Humans a Question: Question-Answer Pair Generation for Children's Story Books
Bingsheng Yao*, Dakuo Wang*, Tongshuang Wu, Tran Hoang, Branda Sun, Toby Jia-Jun Li, Mo Yu, Ying Xu
ACL 2022 - Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)

[P.2] Narrative Question Answering with Cutting-Edge Open-Domain QA Techniques: A Comprehensive Study
Xiangyang Mou*, Chenghao Yang*, Mo Yu*, **Bingsheng Yao**, Xiaoxiao Guo, Saloni Potdar, Hui Su
TACL 2021 - Transactions of the Association for Computational Linguistics, Volume 9

[P.1] Trust in AutoML: exploring information needs for establishing trust in automated machine learning systems
Jaimie Drozdal, Justin Weisz, Dakuo Wang, Gaurav Dass, **Bingsheng Yao**, Changruo Zhao, Michael Muller, Lin Ju, Hui Su
IUI 2020 - Proceedings of the 25th International Conference on Intelligent User Interfaces

In Submission

[P.19] Human Still Wins over LLM: An Empirical Study of Active Learning on Domain-Specific Annotation Tasks
Yuxuan Lu, **Bingsheng Yao**, Shao Zhang, Yun Wang, Peng Zhang, Tun Lu, Toby Jia-Jun Li, Dakuo Wang
In Submission

[P.18] "Mango Mango, How to Let The Lettuce Dry Without A Spinner?": Exploring User Perceptions of Using An LLM-Based Conversational Assistant Toward Cooking Partner
Szeyi Chan, Jiachen Li, **Bingsheng Yao**, Amama Mahmood, Chien-Ming Huang, Holly Jimison, Elizabeth D Mynatt, Dakuo Wang
In Submission to CHI 2024 - Under Review

[P.17] LLM-Powered Conversational Voice Assistants: Interaction Patterns, Opportunities, Challenges, and Design Guidelines
Amama Mahmood, Junxiang Wang, **Bingsheng Yao**, Dakuo Wang, Chien-Ming Huang
In Submission to CHI 2024 - Under Review

[P.16] Who Changed the Destiny of Rural Students, and How?: Unpacking ICT-Mediated Remote Education in Rural China
Yuling Sun, Xiuqi Zhu, Xiaomu Zhou, **Bingsheng Yao**, Kai Zhang, Dakuo Wang, Jiaju Chen, Liang He
In Submission to CSCW 2024 - Under Review

[P.15] Exploring Parent's Needs for Children-Centered AI to Support Preschool Children's Storybook Reading
Yuling Sun, Dakuo Wang, **Bingsheng Yao**, Jiaju Chen, Ying Xu, Xiaojuan Ma, Yuxuan Lu, Liang He
In Submission to CSCW 2024 - Under Review

[P.14] FairytaleCQA: A Dataset for Narrative Comprehension with External Commonsense Knowledge for Children Education
Jiaju Chen, Yuxuan Lu, Shao Zhang, **Bingsheng Yao**, Yuanzhe Dong, Ying Xu, Yunyao Li, Dakuo Wang, Yuling Sun
In Submission

Honors

Member of **Upsilon Pi Epsilon**   📅 Sep 2019 - present
The International Honor Society for the Computing and Information Disciplines

Member of **Gamma Nu Eta**   📅 Sep 2019 - present
The National Information Technology Honor Society

Artificial Intelligence Research Collaboration **(AIRC)** Fellowship   📅 Sep 2022 - Aug 2023
Rensselaer Polytechnic Institute & IBM

Services

Program Committee
EMNLP 23, NAACL 24, ACL ARR (since Aug 23), CHI 24, IUI 24, IMWUT 24, IJHCS

Organizing Committee
CHI 2024 Special Interest Group - "Human-Centered Privacy Research in the Age of Large Language Models"