ZHENG NING

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RESEARCH INTEREST

My research focuses on designing, building, and evaluating interactive systems that leverage multimodal AI models to help users engage with different types of data. This has led to explorations on the representation and transformation of multimodal, multi-format data, and aligning human perceptive and cognitive capabilities with the multimodal understanding capabilities of AI agents to streamline user workflows.

Keywords: Human-Computer Interaction, Applied Machine Learning, Accessibility, Multi-Modal Interaction, Human-Centered Data Science and GenAI.

EDUCATION

Ph.D. in Human-Computer Interaction 2021 - Present
University of Notre Dame, IN, USA
Advisor: Toby Jia-Jun Li

B.S. with Distinction in Electrical Engineering 2016 - 2020
University of Electronic Science & Technology of China, Chengdu, China
Dual degree program with University of Glasgow, Glasgow, UK

INDUSTRIAL EXPERIENCE

Microsoft Research May – Aug 2024
Host: Nathalie Riche and Nicolai Marquardt *Redmond, WA*

Led the design and implementation of a GenAI-based system to enhance workflows where users interact with data in multiple formats and modalities. The system supports both individual and collaborative tasks across single or multiple devices.

Adobe Research Aug – Oct 2023
Host: Dingzeyu Li, and Mira Dontcheva *Seattle, WA*

Productized an LLM-based system for speeding up the rough-cut process for video creators in Adobe Premiere Pro (Pr). Collaborated closely with the product, engineering, and user research team from Pr.

Adobe Research May – Aug 2023
Host: Dingzeyu Li, Valentina Shin, Mackenzie Leake, and Mira Dontcheva *Seattle, WA*

Designed and developed a human-AI collaborative system using GenAI to streamline content editing and visual enhancement for video podcasts creators. Additionally contributed to the development of a related system for creating video podcast teasers.

SELECTED PUBLICATIONS

[C.7] Developer Behaviors in Validating and Repairing LLM-Generated Code Using IDE and Eye Tracking
Ningzhi Tang*, Meng Chen*, **Zheng Ning**, Aakash Bansal, Yu Huang, Collin McMillan, and Toby Li
2024 IEEE Symposium on Visual Languages and Human-Centric Computing ***(VL/HCC'24)***

[C.6] PodReels: Human-AI Co-Creation of Video Podcast Teasers *[Video]*
Sitong Wang, **Zheng Ning**, Anh Truong, Mira Dontcheva, Dingzeyu Li, and Lydia B. Chilton
Proceedings of the 2024 ACM Designing Interactive Systems Conference ***(DIS'24)***

[C.5] MIMOSA: Human-AI Co-Creation of Computational Spatial Audio Effects on Videos *[Project]*
Zheng Ning*, Zheng Zhang*, Jerrick Ban, Kaiwen Jiang, Ruohong Gan, Yapeng Tian, and Toby Jia-Jun Li
Proceedings of the 15th Conference on Creativity and Cognition ***(CC'24)***

[C.4] SPICA: Interactive Video Content Exploration through Augmented Audio Descriptions for Blind or Low-Vision Viewers *[Project]*
Zheng Ning, Brianna L. Wimer, Kaiwen Jiang, Keyi Chen, Jerrick Ban, Yapeng Tian, Yuhang Zhao and Toby Li
In Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems ***(CHI'24)***

[T.1] Insights into Natural Language Database Query Errors: From Attention Misalignment to User Handling Strategies
Zheng Ning*, Yuan Tian*, Zheng Zhang, Tianyi Zhang, Toby Jia-Jun Li
ACM Transactions on Interactive Intelligent Systems ***(TiiS'24)***

[C.3] PEANUT: A Human-AI Collaborative Tool for Annotating Audio-Visual Data *[Video]*
Zheng Zhang*, **Zheng Ning***, Chenliang Xu, Yapeng Tian and Toby Li
In Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology 2023 ***(UIST'23)***

[C.2] Interactive Text-to-SQL Generation via Editable Step-by-Step Explanations *[Video]*
Yuan Tian, Zheng Zhang, **Zheng Ning**, Toby Jia-Jun Li, Jonathan K. Kummerfeld, Tianyi Zhang
The 2023 Conference on Empirical Methods in Natural Language Processing ***(EMNLP'23)***

[C.1] An Empirical Study of Model Errors & User Error Discovery and Repair Strategies in Natural Language Database Queries
Zheng Ning*, Zheng Zhang*, Tianyi Sun, Tian Yuan, Tianyi Zhang, and Toby Jia-Jun Li
The 26th International Conference on Intelligent User Interfaces ***(IUI'23)***

PROFESSIONAL SERVICE

Member of Program Committee	ACM IUI 2025
Member of Program Committee	ACM C&C 2025
Conference Reviewer	ACM CHI 2024-2025
Conference Reviewer	ACM UIST 2023-2025
Conference Reviewer	ACM CSCW 2024

MEDIA COVERAGE

Interactive AI Tool Delivers Immersive Video Content to Blind and Low-Vision Viewers
NVIDIA Technical Blog; Generative AI / LLMs; Aug 12, 2024

SELECTED GRANTS & HONORS

Graduate Student Professional Development Awards, University of Notre Dame	2023
Gary Marsden Travel Awards, ACM SIGCHI	2023
NVIDIA Academic Hardware Grant (Hardware $5000)	2022
First-class honor degree (B.Eng.), University of Glasgow	2020

TEACHING EXPERIENCE

Teaching Assistant, CSE 40748: Human-AI Collaborative Systems 2025
Department of Computer Science and Engineering, University of Notre Dame
Instructor: Prof. Toby Jia-Jun Li

Teaching Assistant, CSE 20289: Systems Programming 2022
Department of Computer Science and Engineering, University of Notre Dame
Instructor: Prof. Collin McMillan

Teaching Assistant, CSE 40868: Neural Networks 2022
Department of Computer Science and Engineering, University of Notre Dame
Instructor: Prof. Adam Czajka

LANGUAGES

English – Native and bilingual proficiency, **Mandarin** – Native and bilingual proficiency

TECHNICAL SKILLS

Program Languages:	Typescript, React, Python, PyTorch, SQL
Softwares:	Figma, Premiere Pro, Photoshop, Tableau, SPSS
UX Skills:	Qualitative Research, Quantitative Research, UX Design