

ZHENG NING

Ph.D. Student, University of Notre Dame, Notre Dame, USA

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RESEARCH INTEREST

Human-computer Interaction, Human-AI Interaction, Multi-Modal Interaction, GenAI and Accessibility.

EDUCATION

University of Notre Dame 09/2021 - Present
Ph.D. of Computer Science Notre Dame, USA

- Advisor: *Toby Jia-Jun Li*

University of Electronic Science & Technology of China (UESTC) 09/2016 - 06/2020
Bachelor of Electrical and Electronic Engineering Chengdu, China


- Joint education program with University of Glasgow, UK
- Graduated with First-Class honor degree

PROFESSIONAL EXPERIENCE

Adobe Research 05/2023 - 10/2023
Host: *Dingzeyu Li, Valentina Shin, Mackenzie Leake, and Mira Dontcheva* Seattle, WA

- **[User research]** Conducted a formative study with 9 video and audio podcast creators, targeting their preferences on adding effects to podcast episodes, and identified key challenges they faced during the video editing process.
- **[System building]** Led the design and development of an interactive system using GenAI to facilitate the assembly and production process of video editing.
- **[Productization]** Designed and implemented AI agents in Adobe Premiere Pro (Pr) to realize the research idea in the first phase. Collaborated with Adobe Pr and user research teams. Led the development of a Minimum Viable Product (MVP) in Pr and initiated the new feature launch process.

PUBLICATIONS

- [SPICA: Interactive Video Content Exploration through Augmented Audio Descriptions for Blind or Low-Vision Viewers](#)
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)
- [PEANUT: A Human-AI Collaborative Tool for Annotating Audio-Visual Data](#)
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)
- [Interactive Text-to-SQL Generation via Editable Step-by-Step Explanations](#)
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)
- [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)
- [Exploring Contrast Consistency of Open-Domain Question Answering Systems on Minimally Edited Questions](#)
Zhihan Zhang, Wenhao Yu, **Zheng Ning**, Mingxuan Ju, Meng Jiang
Transactions of the Association for Computational Linguistics (TACL'23)
- [Human-in-the-Loop Generation of Spatial Audio from Videos with Monaural Audio](#) [ Demo]
Zheng Ning*, Zheng Zhang*, Jerrick Ban, Kaiwen Jiang, Ruohong Gan, Yapeng Tian, and Toby Jia-Jun Li
ECCV 2022 Workshop on Visual Learning of Sounds in Spaces

- [On the Relationship Between Counterfactual Explainer and Recommender](#)

Gang Liu, Zhihan Zhang, **Zheng Ning**, and Meng Jiang

KDD 2022 Workshop on Data Science and Artificial Intelligence for Responsible Recommendations

RESEARCH PROJECTS

Human-AI co-creation of video podcast teasers

Adobe Research

Collaborator, with: *Sitong Wang* (Columbia University), *Dingzeyu Li*, *Anh Truong*, and *Mira Dontcheva*

- Contributed to the design and development of an interactive system to support video podcast creators in creating compelling video teasers from long-form podcast episodes. (System built using React, GPT-4, Adobe Common Extensibility Platform (CEP) and ExtendScript)

Multimodal exploration of video content for Blind or Low-Vision (BLV) populations

U of Notre Dame

Lead researcher, with: *Yuhang Zhao* (U of Wisconsin-Madison) and *Yapeng Tian* (UT Dallas)

- Developed an accessible tool with various interaction strategies (mouse-keyboard exploration, touch exploration, and mid-air gesture) for BLV populations to explore video content and increase immersion (System built on React & Flask)
- Leveraged state-of-the-art visual-language models to automatically detect key frames, generate associated audio descriptions (ADs), and object-level ADs. (Using Python & Pytorch)
- Conducted user studies with 14 BLV participants to investigate the effectiveness of the system and compare the disparities among different interaction strategies

Human-AI co-creation tool for generating and manipulating spatial audio effects for videos

U of Notre Dame

Lead researcher, with: *Zheng Zhang*, *Jerrick Ban*, and *Yapeng Tian* (UT Dallas)

- Designed and developed a video creation tool that enables amateur users to interactively generate and manipulate 3D spatial audio effects in videos that only had monaural or stereo audio originally (System built on React)
- Designed and conducted a controlled user study of the system, demonstrating its capability to generate immersive and realistic spatial effects as well as effective support to post-hoc effect editing for amateur video content creators

GRANTS & HONORS

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| Graduate Student Professional Development Awards, University of Notre Dame | 2023 |
| Gary Marsden Travel Awards, SIGCHI | 2023 |
| NVIDIA Academic Hardware Grant (\$4,650 in equipment) | 2022 |
| Outstanding final year project of Glasgow College, UESTC (Top 10%) | 2020 |
| Outstanding Student Scholarship (Top 10%), UESTC | 2017 - 2019 |

SKILLS

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| Program Languages: | Typescript, React, Python, Pytorch, Flask, HTML, SQL, Tensorflow |
| Softwares: | Xd, Tableau, Figma, Premiere Pro, PhotoShop, SPSS |
| UX Skills: | Qualitative Research, Quantitative Research, Experiment Design |
| Languages: | English – Fluent, Chinese (Mandarin) – Native |

COMMUNITY SERVICE

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|-----------------|---|
| Reviewer | The 2024 CHI Conference on Human Factors in Computing Systems (CHI'24) |
| Reviewer | The 36th Annual ACM Symposium on User Interface Software and Technology (UIST'23) |