Xiaohang Tang

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Education

Virginia Tech, Blacksburg, USA 08/2023 – Present

Ph.D. in Computer Science

University of Liverpool, Liverpool, UK 09/2021 – 06/2023

B.Sc. in Computer Science First Class (Honors)

Xi'an Jiaotong-Liverpool University, Suzhou, China 09/2019 – 08/2021

B.Sc. in Information and Computing Science First Class (Honors)

Research Experience

University of Notre Dame 05/2022 – 02/2023

HCI + NLP | Research Intern | SaNDwich Lab

Advisors: Toby Jia-Jun Li & Elena Glassman (co-advised from Harvard University)

- Aimed to establishing effective AI assistance for qualitative coding by designing an interactive human-AI collaboration system that can fit the uncertainty and ambiguity of qualitative coding.
- The proposed system can effectively recommend codes, help human users discover data characteristics and new theories, and accommodate the vague, uncertain, and iterative nature of qualitative coding.
- Helped design and develop the system and relevant algorithms; participated in designing and conducting a user study and an offline system experiment; contributed to qualitative and quantitative data analysis of the interview transcripts and the study results.

University of Liverpool 10/2021 – Present

NLP | Research Assistant | NLP@Liv

Advisor: Danushka Bollegala

- Led research to enhance dynamic word embedding that learns semantic change across time.
- Proposed a template-based method with three unsupervised tuple selection methods in terms of frequency, diversity, and context of words and two template generation methods to learn semantic change over time; evaluated the proposed method by time-adapting a pre-trained Masked Language Model (MLM) with our approach; the proposed method beat the SoTA approach.
- Contributed to propose the methods and design experiments; implemented proposed approaches and executed experiments.

Xi'an Jiaotong-Liverpool University 10/2020 – 08/2021

HCI + VR + Cybersickness | Research Assistant | X-CHI Lab

Advisors: Hai-Ning Liang & Diego Monteiro

- Aimed to identify cybersickness in a fast, precise, non-intrusive, and non-disruptive way in VR applications such as games by exploring the correlation between cybersickness and trajectory compression rate.
- Demonstrated experimentally that a machine learning approach can be used to identify changes in cybersickness using trajectory compression rate as a measurement.
- Contributed to experiment design and data analysis; programmed VR software for experiments in Unity3D and conducted experiments; participated in writing a paper and a patent.

HCI + VR + Accessibility + Gamification | Research Assistant | X-CHI Lab

Advisor: Hai-Ning Liang

- Researched ways to facilitate empathy in people with non-myopia for those who suffer from myopia through two VR games.
- Investigated users experience and empathetic feelings of the two VR games with semi-structured interviews and questionnaires.
- Programmed experimental software (games) in Unity3D; contributed to the game design, experiments design, and user study data analysis.

Selected Publications: My Google Scholar

Full Paper

[C.4] **Xiaohang Tang**, Yi Zhou, Taichi Aida, Procheta Sen, Danushka Bollegala, "Can Word Sense Distribution Detect Semantic Changes of Words?," in **EMNLP'23 Findings**

[C.3] **Xiaohang Tang**, Yi Zhou, Danushka Bollegala, "Learning Dynamic Contextualised Word Embeddings via Template-based Temporal Adaptation," in **ACL'23**

[C.2] Simret Araya, Zheng Zhang, **Xiaohang Tang**, Yihao Meng, Elena Glassman, Toby Jia-Jun Li, "PaTAT: Human-AI Collaborative Qalitative Coding with Explainable Interactive Rule Synthesis," in **CHI'23**

[C.1] Diego Monteiro, Hai-Ning Liang, **Xiaohang Tang**, Pourang Irani, "Using Trajectory Compression Rate to Predict Changes in Cybersickness in Virtual Reality Games," in **ISMAR'21**

[J.1] Jingjing Zhang, Mengjie Huang, Rui Yang, Yiqi Wang, **Xiaohang Tang**, Ji Han, Haining Liang, "Understanding the effects of hand design on embodiment in virtual reality," in **AI EDAM (Cambridge University Press)**

Extended Abstract

[EA.4] **Xiaohang Tang**, Xi Chen, Sam Wong, Yan Chen, "VizPI: A Real-Time Visualization Tool for Enhancing Peer Instruction in Large-Scale Programming Lectures," in **UIST'23**

[EA.3] Xiang Li, Yuzheng Chen, **Xiaohang Tang**, "GesMessages: Using Mid-air Gestures to Manage Notifications," in **SUI'23**

[EA.2] Xiang Li, Yuzheng Chen, **Xiaohang Tang**, "GesPlayer: Using Augmented Gestures to Empower Video Players," in **ISS'22**

[EA.1] Xiang Li, **Xiaohang Tang**, Xin Tong, Rakesh Patibanda, Florian 'Floyd' Mueller, Hai-Ning Liang, "Myopic Bike and Say Hi: Games for Empathizing with The Myopic," in **CHI PLAY'21** [SGDC Finalist]

Patent

[PA.1] Diego Monteiro, Hai-Ning Liang, **Xiaohang Tang**, "A method, apparatus and storage medium for detecting user's cybersickness level in virtual environment," **[CN113283612A]**

Academic Service

Reviewer: **CHI Late-Breaking Work** (2022, 2023), **CSCW** (2023)

Student Volunteer: **ACM CHI** (2023), **ACM UbiComp** (2022), **ACM DIS** (2022), **IEEE AIVR** (2020)

Selected Awards

ACM SIGCHI Gary Marsden Travel Award '22 ($3500)

University Academic Achievement Award '20 at XJTLU ($750, 10%)

Skills

Programming Languages: Python, C/C++, C#, Java, R

Tools and Frameworks: LaTeX, PyTorch, Unity3D