Yuchen (Ethan) Wu [Homepage]

Contact Information

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ShanghaiTech University
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Research Interests

HCI & Visualization, Spatial Computing, Immersive Analytics, Cross-Reality Interaction
Visual Analytics, Multimodal Communication

Education

ShanghaiTech University, Shanghai, China
Master of Computer Science (MCs)
Sep. 2021 - Jun. 2025 (expected)
Advisor: Quan Li

Academic Experience

Hong Kong University of Science and Technology, HCI Initiative @ HKUST, Hong Kong, China

Research Intern (Advisor: Xiaojuan Ma) Sept. 2024 - Present
Immersive Analytics of Oceanographic Data. Designing and implementing immersive analytics system that adopts a scene feature graph, facilitates navigation and narration of analytical routes, and generates meta-summaries of trajectories for analysis and communication for various variables for marine environment in China Sea.

ShanghaiTech University, ViSeer Lab, Shanghai, China

Graduate Research Assistant (Advisor: Quan Li) May. 2023 - Present
Visual Analytics, Hybrid User Interface, Theory/Methodology, AR/VR. Exploring and leading corresponding research projects with diverse areas to establish a concrete sense of each sub-field.

Publications

Yuchen Wu, Shenghan Gao, Shizhen Zhang, Xingbo Wang, Quan Li. From Requirement to Solution: Unveiling Problem-Driven Design Patterns in Visual Analytics. In *IEEE Transactions on Visualization and Computer Graphics*.
TVCG 2025

- Presented a methodology of meta-analysis for VA research from a problem-driven perspective.
- Contributed a solution typology and refined typologies of requirement and data, formulating updated abstraction frameworks for VA.
- Unveiled problem-solving practice of VA research through a dense, directed, and weighted graph.

Yuchen Wu, Yuansong Xu, Shenghan Gao, Xingbo Wang, Wenkai Song, Zhiheng Nie, Xiaomeng Fan, Quan Li. LiveRetro: Visual Analytics for Strategic Retrospect in Livestream E-Commerce. In *IEEE Transactions on Visualization and Computer Graphics (VIS 2023 Conf.)*.
VIS 2023 · Full Paper

- Proposed *LiveRetro*, an interactive visual analytics system, supporting the retrospective analysis of livestream e-commerce strategies from a multifaceted and empirical perspective.
- Identified design requirements supporting a comprehensive strategic retrospect in livestream e-commerce and informative computational features that facilitate the analysis of live performance.
- Conducted case studies and expert interviews that proved the effectiveness and usability of the system.

Yuchen Wu, Shengxin Li, Shizhen Zhang, Xingbo Wang, Quan Li. Trinity: Synchronizing Verbal, Nonverbal, and Visual Channels to Support Academic Oral Presentation Delivery. In *Proceedings of International Symposium of Chinese CHI*.
ChineseCHI24 🏆Best Paper Award (0.6%)

- Proposed *Trinity*, a hybrid delivery support system that provides guidance for multichannel delivery on-the-fly.

- Conducted a controlled between-subject user study to investigate the usability, effectiveness, interaction, influence, trust and collaboration of *Trinity*.

Yang Ouyang, **Yuchen Wu**, He Wang, Chenyang Zhang, Furui Cheng, Chang Jiang, Lixia Jin, Yuanwu Cao, Quan Li. Leveraging Historical Medical Records as a Proxy via Multimodal Modeling and Visualization to Enrich Medical Diagnostic Learning. In *IEEE Transactions on Visualization and Computer Graphics*.
VIS 2023 · Full Paper

- Presented DiagnosisAssistant, a visual analytics system that leverages historical medical records as a proxy for multimodal modeling and visualization to enhance the learning experience of interns and novice physicians.
- Shadowed and gain insight into the "mentor-apprentice" processes between experienced physicians and interns/novices.
- Demonstrated the validity and reliability of our approach through two case studies and expert interviews.

He Wang, Yang Ouyang, **Yuchen Wu**, Chang Jiang, Lixia Jin, Yuanwu Cao, Quan Li. KMTLabeler: An Interactive Knowledge-Assisted Labeling Tool for Medical Text Classification. In *IEEE Transactions on Visualization and Computer Graphics*.
TVCG 2024

- Introduced a collaborative human-ML teaming workflow, strategically designed to actively engage domain experts in the labeling process.
- Presented an embedding network that aligns document embeddings with expert knowledge to swiftly detect significant latent patterns for label creation.
- Offered a visual analytics tool designed to seamlessly integrate the workflow and embedding network, featuring coordinated views and interactions to expedite and optimize the labeling process efficiently.

Papers in Preparation

Yuchen Wu, Shizhen Zhang, Shengxin Li, Qian Zhu, Quan Li. "*on Selection Techniques that enables unaligned gaze-hand coordination in 3D Environments*".
Submitted to ACM CHI 2025

- Proposed a gaze-hand based selection technique that adapts the inherent gaze-hand coordination observed in human reach-to-grasp process to 3D environments.
- Conducted a series of cross-reality experiments comparing UPinch to Gaze + Pinch, Gaze + Handray and Reality, identifying their gaze-hand characteristics in diverse tasks.

Conference Presentations

LiveRetro: Visual Analytics for Strategic Retrospect in Livestream E-Commerce.
VIS 2023, Victoria, Melbourne, Australia.

Trinity: Synchronizing Verbal, Nonverbal, and Visual Channels to Support Academic Oral Presentation Delivery.
ChineseCHI 2024, Shenzhen, Guangdong, China.

Services & Activities

ShanghaiTech University, Shanghai, China
Volunteer Nov. 2023
Volunteer in Shanghai International Marathon.

ShanghaiTech University, Shanghai, China
Entrant to the Entrepreneurship Innovation Conference Nov. 2023
Patent application for Trinity and roadshow to investors

Skills

Computer Science: Data Visualization, AI&ML, Web Programming, Data Mining.

Research: Quantitative & Qualitative Research, Human-centered Design, Controlled User Study, Interview, Iterative Design.

Frameworks&Tools: D3.js, Unreal, Rhinoceros, Figma, Miro.

Languages: Mandarin Chinese, English. Python, C/C++, JavaScript, Vue, HTML, CSS, LaTeX.