TONG WAI

wtong2017.github.io — wtong@connect.ust.hk — wtong2017 — wtong2021 — Wai Tong

RESEARCH INTEREST

Data Visualization, AR/VR, Human-Computer Interaction

EDUCATION

The Hong Kong University of Science and Technology, Hong Kong *09/2020 - Present*
Ph.D. candidate in the Department of Computer Science and Engineering
Thesis Topic: Towards Effective Transitions across Reality-Virtuality Continuum for Data Visualization
Advisors: Prof. Huamin Qu and Prof. Ting Chuen Pong

Virginia Polytechnic Institute and State University, USA *06/2022 - 10/2022*
Visiting student in the Department of Computer Science and Engineering
Advisor: Dr. Yalong Yang

The Hong Kong University of Science and Technology, Hong Kong *09/2018 - 06/2020*
MPhil student in the Department of Computer Science and Engineering (transferred to Ph.D. program)
Advisor: Prof. Huamin Qu

The Hong Kong University of Science and Technology, Hong Kong *09/2014 - 08/2018*
B.Eng. in Department of Computer Science and Engineering

PUBLICATIONS

Towards an Understanding of Asymmetric Collaborative Visualization on Problem-solving
Wai Tong, Meng Xia, Jason Kamkwai Wong, Doug Bowman, Ting-Chuen Pong, Huamin Qu, and Yalong Yang
IEEE Conference on Virtual Reality and 3D User Interfaces (VR), 2023

Cinematography in the Metaverse: Exploring the Lighting Education on a Soundstage
Xian Xu, **Wai Tong**, Zheng Wei, Meng Xia, and Huamin Qu
IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2023

Understanding 3D Data Videos: From Screens to Virtual Reality
Leni Yang, Aoyu Wu, **Wai Tong**, Xian Xu, Zheng Wei, and Huamin Qu
IEEE Pacific Visualization Symposium (PacificVis), 2023

🏆 **Exploring Interactions with Printed Data Visualizations in Augmented Reality**
Wai Tong, Zhutian Chen, Meng Xia, Leo Yu-Ho Lo, Linping Yuan, Benjamin Bach, and Huamin Qu
IEEE Visualization Conference (VIS), 2022 (**Best Paper Honorable Mention Awards**)

ComputableViz: Mathematical Operators as a Formalism for Visualization Processing and Analysis
Aoyu Wu, **Wai Tong**, Haotian Li, Dominik Moritz, Yong Wang, and Huamin Qu
ACM Conference on Human Factors in Computing Systems (CHI), 2022

Let Every Seat Be Perfect! A Case Study on Combining BIM and VR for Room Planning
Wai Tong*, Haotian Li*, Huan Wei*, Liwenhan Xie*, Yanna Lin*, and Huamin Qu (*: equal contribution)
IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW), 2022

MobileVisFixer: Tailoring Web Visualizations for Mobile Phones Leveraging an Explainable Reinforcement Learning Framework
Aoyu Wu, **Wai Tong**, Tim Dwyer, Bongshin Lee, Petra Isenberg, and Huamin Qu
IEEE Transactions on Visualization and Computer Graphics (TVCG), 2020

Augmenting Static Visualizations with PapARVis Designer
Zhutian Chen, **Wai Tong**, Qianwen Wang, Benjamin Bach, and Huamin Qu
ACM Conference on Human Factors in Computing Systems (CHI), 2020

PROJECTS

Areas of Excellence (AoE) Project - Centre for Slope Safety *09/2022 - Present*
A world-leading Centre for Slope Safety will be established to provide innovative and environmentally friendly solutions for coping with future rainfall scenarios. I am working as an immersive visualization researcher in investigating and developing an AR application for slope safety education by using gamification, data visualization, and immersive technology. For more details, please find at `https://slope-aoe.hkust.edu.hk/home`.

VisPIE - Visualizing Sustainability *04/2022*

VisPIE promotes a sustainable lifestyle using XR, digital twin, and data visualization. We present USTreePlantAR to encourage students to perform green action on campus. We try to quantify and visualize everyone's affordance for sustainability through Augmented Reality. With gamification, we transform green actions into a positive game loop to promote long-lasting sustainability actions. I have worked as an AR mobile application developer using Unity. This project won the Deloitte ESG Innovation Award in hackUST 2022.

Immersive Storytelling for HKUST 30th Anniversary *11/2021 - Present*

This project utilizes Augmented Reality (AR) and Data Visualization techniques to introduce the history of HKUST for its 30th Anniversary. An AR website is built and augmented on campus for students and visitors to take a "walk along memory lane", where the timeline of important events is visualized along the corridor in reality. This AR experience allows the audiences to engage in an immersive data story of the 30-year history of HKUST. I am one of the lead project members, mainly focusing on Web AR development, using the 8th Wall library.

Pulse of HKUST *09/2018 - Present*

This project promotes a smart campus in HKUST by combining IoT devices, big data, and data visualization. I am working as one of the core members, developing an interactive visualization system, a mobile web application using Vue.js and d3.js, and backend data processing using Python. This project won the Student Innovation Gold Award in HKICT 2019 and a Merit award in the R&D category in APICTA 2019. Moreover, it is also selected as one of the HKUST Sustainable Smart Campus as a Living Lab (SSC) projects.

USThing *12/2017 - 12/2018*

USThing is a mobile app for the HKUST community that provides more convenient access to campus information. I worked as one of the student developers and wrote Kotlin with Android Studio to enhance the existing Android app. Moreover, it is also selected as one of the HKUST SSC projects.

WORK EXPERIENCE AND INTERNSHIPS

HKUST Entrepreneurship Center *06/2018 - 08/2018*

Developer (Summer Internship)

· Performed backend development for a booking system website using PHP

Mirum Hong Kong *06/2017 - 08/2017*

Developer (Summer Internship)

· Built a content management system for a website using TeamSite and LiveSite.
· Performed backend development of a website using Java

TECHNICAL STRENGTHS

Programming	JavaScript&Typescript (Vue.js, React.js d3.js, Node.js, WebXR, three.js), C# (Unity3D), Python, Flutter
Operating system	Windows, Linux, macOS