

Yuan-Chun Sun

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Educations

- 2023 – 2025
(Expected) **National Tsing Hua University (NTHU), Taiwan, Information Systems and Applications (Master of Science)**,
Thesis Topic: Immersive Multimedia Streaming in Next-Generation Mobile Networks,
Advisor: Prof. Cheng-Hsin Hsu.
- 2019 – 2023 **National Tsing Hua University (NTHU), Taiwan, Interdisciplinary Program of Electrical Engineering and Computer Science (Bachelor of Science)**.

Research Interests

Multimedia Networking, Immersive Video Streaming, Virtual Reality, Augmented Reality, and Wireless Networks.

Publications

Conference/ Workshop papers

- Y. Sun**, Y. Shi, W. Ooi, C. Huang, and C. Hsu. *Multi-frame Bitrate Allocation of Dynamic 3D Gaussian Splatting Streaming Over Dynamic Networks*, in *Proc. of ACM SIGCOMM Workshop on Emerging Multimedia Systems (EMS'24)*, Sydney, Australia, August 2024.
- C. Hsu, **Y. Sun**, K. Lee, and C. Huang. *Will Neural 3D Object Representations be the Silver Bullets for Improving VR Experience in HMDs?*, in *Proc. of IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR'24)*, San Jose, CA, August 2024.
- Y. Wei, **Y. Sun**, S. Zheng, C. Huang, and C. Hsu. *Mitigating Privacy Threats Without Degrading Visual Quality of VR Applications: Using Re-identification Attack as a Case Study*, in *Proc. of IEEE International Conference on Multimedia Information Processing and Retrieval (MIPR'24)*, San Jose, CA, August 2024.
- S. Tang, **Y. Sun**, and C. Hsu. *A Blind Streaming System for Multi-client Online 6-DoF View Touring*, in *Proc. of ACM International Conference on Multimedia (MM'23)*, Ottawa, Canada, October 2023.
- Y. Sun**, I. Huang, Y. Shi, W. Ooi, C. Huang, and C. Hsu. *A Dynamic 3D Point Cloud Dataset for Immersive Applications*, in *Proc. of ACM SIGMM Conference on Multimedia Systems (MMSys'23)*, Vancouver, Canada, June 2023, Dataset Paper.
- K. Lee, J. Fang, **Y. Sun**, and C. Hsu. *Modeling Gamer Quality-of-Experience Using a Real Cloud VR Gaming Testbed*, in *Proc. of ACM International Workshop on Immersive Mixed and Virtual Environment Systems (MMVE'23)*, Vancouver, Canada, June 2023.
- Y. Sun**, S. Tang, C. Wang, and C. Hsu. *On Objective and Subjective Quality of 6DoF Synthesized Live Immersive Videos*, in *Proc. of ACM Workshop on Quality of Experience in Visual Multimedia Applications (QoEVMA'22)*, Lisbon, Portugal, October 2022.
- S. Tang, **Y. Sun**, J. Fang, K. Lee, C. Ting, and C. Hsu. *Optimal Camera Placement for 6 Degree-of-Freedom Immersive Video Streaming Without Accessing 3D Scenes*, in *Proc. of ACM Workshop on Interactive Extended Reality (IXR'22)*, Lisbon, Portugal, October 2022.

Experiences

- July 2021 - Present **Research Assistant at Networking and Multimedia Systems Lab in NTHU.**
Advisor: Prof. Cheng-Hsin Hsu
Conducted extensive research in immersive multimedia systems, contributing to various projects:
- **Immersive Video Streaming for 6-Degree-of-Freedom Interaction.**
 - **Optimal Camera Placement for 6-Degree-of-Freedom Multicast of 3D Scenes.**
 - **Enabling XR Cloud Gaming in 6G Cellular Network.** (Joint work with MediaTek)
 - **Mitigating Privacy Threat in VR Application.** (Joint work with NYCU)
 - **Dynamic 3D Point Cloud Streaming.** (Joint work with NUS and NYCU)
 - **Immersive Streaming for Dynamic 3D Gaussian Splatting.** (Joint work with NUS and NYCU)
- My research contains eXtended Reality, multimedia, and network systems. And my works are collaborate with **Prof. Wei Tseng Ooi** from the National University of Singapore, **Prof. Yao Liu** from Rutgers University, and **Prof. Chun-Ying Huang** from National Yang-Ming Chiao Tung University.
- Fall 2023 **Teaching Assistant in Introduction to Computer Networks Course.**
My job includes: (1) supporting students in understanding fundamental course concepts, assignments, and lab work, (2) conducted tutorials, held office hours, and guided students, aiding their comprehension of networking principles and practical applications, and (3) collaborated with course instructors in designing materials, assessments, and grading, ensuring a practical learning experience for students.
- 2021 **NTHU Student Cluster Competition Team Member.**
The goal of this team is to training and selecting team members for the APAC HPC-AI Competition. This competition was about High-Performance Computing (HPC) and Artificial Intelligence (AI). The goal of this competition was handling the ever-growing demands for higher computation performance and the increase in the complexity of research problems. In this competition, I worked on the research of Deep Learning Recommendation Model (DLRM) and figured out how to set up the environment and tools for it in supercomputer.
- 2020 **Dazzle Corporation Website Frontend Develop.**
This goal of this project was to develop a website with both frontend and simple backend for a manufacturing company which is called DAZZLE. In this project, I was responsible for the UI/UX design, frontend development, project management, and client supports. My partner was working on the backend developing. This is the first commercial project that I was involved in.

Competitions and Awards

- 2024 **ACM SIGCOMM'24 Travel Grant, Sydney, Australia.**
- 2023 **National Science and Technology Council Travel Grant, Ottawa, Canada.**
- 2022 **Undergraduate Research Fellowship, Ministry of Science and Technology (MOST), Taiwan.**
- 2022 **NTHU EE Undergraduate Project Competition - Honorable Mention.**
- 2021 **APAC HPC-AI Competition 2021 - Second Prize & Special Award.**
- 2021 **Meichu Hackathon 2021 - Most Feasibility Award.**
- 2021 **Hackathon Junior 7th - Third Place (Advanced group).**
- 2021 **Shopee Ultimate Case Challenge 2021 - Top 25.**