SHI, YUANG

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EDUCATION

National University of Singapore *Aug. 2022 - Present*
Ph.D., Computer Science
Advisor: Prof. Ooi Wei Tsang

National University of Singapore *Aug. 2021 - Aug. 2022*
Master of Computing, Computer Science
Honours Degree (Distinction)

Sichuan University *Aug. 2017 - Aug. 2021*
Bachelor of Engineering, Software Engineering

RESEARCH INTERESTS

My research focuses on real-time streaming of 3D immersive media, spanning topics on efficient 3D representation and compression, perceptual quality modeling, and end-to-end streaming system design. My works received 3 Best Paper Awards. Looking ahead, I aim to explore generative AI, world models, and feed-forward Gaussian reconstruction for 3D streaming, driving a paradigm shift in 3D media delivery from "compress-and-transmit" to "generate-and-transmit."

Keywords: 3D Media Streaming, Gaussian Splatting, Point Cloud, Generative AI for Streaming

AWARDS AND HONOURS

Best Paper Award *2025*
The 16th ACM Multimedia Systems Conference

Best Paper Award *2025*
The 39th ACM SIGCOMM, Workshop on Emerging Multimedia Systems

Best Paper Award *2024*
The 38th ACM SIGCOMM, Workshop on Emerging Multimedia Systems

Outstanding Reviewer *2026*
The 17th ACM Multimedia Systems Conference (Top 1%)

The France Eiffel Excellence Scholarship *2025*
The Ministry for Europe and Foreign Affairs, France (Top 5% Worldwide)

EXPERIENCE

Université de Toulouse – France *Sept. 2025 - Sept. 2026*
Visiting PhD Student working with Prof Géraldine Morin and Prof Simone Gasparini

TikTok Pte. Ltd. – Singapore *May - Aug. 2025*
Research Intern

PUBLICATIONS (SELECTED)

Authors marked with * are master/undergraduate students I mentored / collaborated when the work was carried out.

[1] L. Wang*, **Yuang Shi**, and W. T. Ooi, "P-GSVC: layered progressive 2D Gaussian splatting for scalable image and video," in *Proceedings of the ACM Multimedia Systems Conference 2026, MMSys 2026, Hong Kong, SAR, China, April 4-8, 2026*, 2026, pp. 156–166.

[2] N. B. Krishna, **Yuang Shi**, W. T. Ooi, and A. Rizk, "NETSPLAT: Data plane network assistance for streaming 3D Gaussian splatting scenes," in *Proceedings of the 2025 SIGCOMM Workshop on Emerging Multimedia Systems, Coimbra, Portugal*, 2025, 58–60.
Best Paper Award.

[3] Y. Sun, **Yuang Shi**, C. Lee, *et al.*, "LTS: A DASH streaming system for dynamic multi-layer 3D Gaussian splatting scenes," in *Proceedings of the 16th ACM Multimedia Systems Conference, MMSys 2025, Stellenbosch, South Africa*, 2025, 136–147.
Best Paper Award.

[4] **Yuang Shi**, G. Morin, S. Gasparini, and W. T. Ooi, "LapisGS: Layered progressive 3D Gaussian splatting for adaptive streaming," in *International Conference on 3D Vision, 3DV 2025, Singapore*, 2025, pp. 991–1000.

[5] L. Wang*, **Yuang Shi**, and W. T. Ooi, "GSVC: efficient video representation and compression through 2D Gaussian splatting," in *Proceedings of the 35th Workshop on Network and Operating System Support for Digital Audio and Video, NOSSDAV 2025, Stellenbosch, South Africa*, 2025, pp. 15–21.

[6] I. Huang*, **Yuang Shi**, Y. Sun*, W. T. Ooi, C. Huang, and C. Hsu, "Composing error concealment pipelines for dynamic 3D point cloud streaming," *ACM Trans. Multim. Comput. Commun. Appl.*, vol. 21, no. 6, 157:1–157:28, 2025.

[7] Y. Sun*, **Yuang Shi**, W. T. Ooi, C. Huang, and C. Hsu, "Multi-frame bitrate allocation of dynamic 3D Gaussian splatting streaming over dynamic networks," in *Proceedings of the 2024 SIGCOMM Workshop on Emerging Multimedia Systems, Sydney, NSW, Australia*, 2024.
Best Paper Award.

[8] **Yuang Shi**, B. Clement*, and W. T. Ooi, "QV4: QoE-based viewpoint-aware V-PCC-encoded volumetric video streaming," in *Proceedings of the 15th ACM Multimedia Systems Conference, MMSys 2024, Bari, Italy*, 2024, pp. 144–154.

[9] **Yuang Shi**, P. Venkatram*, Y. Ding, and W. T. Ooi, "Enabling low bit-rate MPEG V-PCC-encoded volumetric video streaming with 3D sub-sampling," in *Proceedings of the 14th Conference on ACM Multimedia Systems, MMSys 2023, Vancouver, BC, Canada*, 2023, pp. 108–118.

TEACHING

Teaching Assistant – Université de Toulouse

N9EN16C: Modélisation Compression Streaming Interactions 3D *Fall 2025*

N9EN15A: Intelligence Artificielle et Multimédia *Fall 2025*

Tutor and Teaching Assistant – National University of Singapore

CS2106: Introduction to Operating Systems *Spring 2025*

CS3244: Machine Learning *Fall 2024, Spring 2024, Spring 2023, Fall 2022*

TALKS

Conference Talk: ACM MMSys 2025, ACM MMSys 2024, ACM MMSys 2023

Workshop Talk: MMVE@MMSys 2025, MMVE@MMSys 2024

Invited Talk:

Immersive Media Streaming in Networked Extended Reality *Sept. 2025*
N7 - INP Toulouse, France

3D Gaussian-based Immersive Media Streaming in Networked Extended Reality *May. 2025*
New Jersey Institute of Technology, NJ

View-Adaptive V-PCC-encoded Volumetric Video Streaming *May 2024*
Sichuan University, Sichuan

Volumetric Video Compression with Neural Representation *Apr. 2024*
Université de Toulouse, France

3D Gaussian Splatting for Static and Dynamic View Synthesis *Feb. 2024*
National University of Singapore, Singapore

Human-Centred Bandwidth-Efficient Volumetric Video Streaming *Dec. 2023*
National Tsing Hua University, Taiwan

SERVICE

Technical Program Committee: ACM MMSys 2026

Reviewer: ACM MMSys 2026, ACM MM 2026, ACM MM 2024; IEEE Transactions on Multimedia (IEEE TMM), ISPRS Journal of Photogrammetry and Remote Sensing (P&RS), Elsevier Neurocomputing, Elsevier Pattern Recognition (PR), Elsevier Medical Image Analysis (MIA), IEEE Transactions on Neural Networks and Learning Systems (IEEE TNNLS), IEEE Transactions on Visualization and Computer Graphics (IEEE TVCG), IEEE MultiMedia, IEEE Transactions on Cognitive and Developmental Systems (IEEE TCDS), ACM Transactions on Multimedia Computing, Communications, and Applications (ACM TOMM)