Transport Layer Innovations in Ultra-Low Latency Video Streaming

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Monday, April 15, 2024 | 10:00am PDT | KAP 209
Zoom Link:
https://usc.zoom.us/j/95686725906?pwd=elFld2ZQZXM4a3ZjTkR0MTZoSDV4QT09
Meeting ID: 956 8672 5906 Passcode: 836045

Abstract: In the post-pandemic era, ultra-low latency video streaming is increasingly popular nowadays. Numerous applications like videoconferencing, cloud gaming, virtual reality, remote driving are coming or have come to our daily life. However, these interactive video streaming applications require ultra-low and consistent latency to ensure the interactive experience, which challenges how the sender is transmitting packets and reacting to fluctuations nowadays.

My research rethinks the latency in interactive video streaming in an end-to-end way and tries to share some preliminary thoughts on what the network and related communities should do to enable the wide deployment of these applications. In this talk, I will present our work on how to achieve a consistent low latency for interactive video streaming. Specifically, I will talk about how we control the tail latency on the transport layer from the perspective of congestion control (Zhuge, SIGCOMM'22) and loss recovery (Hairpin, NSDI'24).

Bio: Zili Meng is an assistant professor at HKUST. He received his B.Eng. (Hons) and Ph.D. (Hons) from Tsinghua University. His current research interest focuses on ultra-low latency interactive streaming from all layers. He is the recipient of the Doctoral Dissertation Awards from ACM China and China Institute of Electronics. a Microsoft PhD Fellowship (Asia), the Gold Medal of SIGCOMM 2018 SRC, and some best paper awards. His research has been used in many industry companies.

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