

## COMPUTER SCIENCE RESEARCH SEMINAR

### Improving Bandwidth-Efficiency of 360-Degree Video Streaming: Two Approaches

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**Friday, November 2nd at noon in room R15, Engineering Building**

**Abstract:** 360-degree video streaming is a recent innovation where each video frame encodes the omnidirectional scene around the camera. Users can view 360-degree videos using head mounted display systems, allowing for an immersive experience of the stream's content. Despite its potential, 360-degree video streaming suffers from high bandwidth requirements, hindering large-scale adaption.

In this talk, I describe two sources of bandwidth inefficiencies in 360-degree video streaming: view inefficiency - only a small field of view from each omnidirectional frame is observed by the user, and projection inefficiency - redundant pixels are introduced in the sphere-to-rectangle projection needed for encoding the 360-degree video. I next introduce two of our recent efforts to address such inefficiencies - ClusTile for efficient tiling of 360-degree videos and the MiniView Layout for improving the projection efficiency of encoded 360-degree videos.

**Bio:** Dr. Yao Liu is an assistant professor at Binghamton University. Her research interests lie in mobile and cloud computing, Internet measurement and content delivery, and distributed systems. More information can be found at: [www.cs.binghamton.edu/~yaoliu/](http://www.cs.binghamton.edu/~yaoliu/)

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**Refreshments will be provided!**