

COMPUTER SCIENCE RESEARCH SEMINAR

Bandwidth-efficient 360-degree video streaming: Challenges and Approaches

Yao Liu

Department of Computer Science, Binghamton University

Friday, September 1st, 2017 at noon in room R15, Engineering Building

Abstract: 360-degree video streaming is a recent innovation that promises greater immersiveness than standard video streams. Although 360-degree video has much potential toward providing more-immersive digital environments, a number of factors hinder its large scale adoption: 360-degree video streams require more bandwidth than standard video streams, streaming must respond more quickly to user inputs (i.e. changes in user head orientation), and users may be more-sensitive to lower quality streams.

This talk reviews standard approaches toward 360-degree video streaming and introduces two of our efforts toward improving 360-degree streaming efficiency: First, we describe how we successfully reverse-engineered Facebook's recently-introduced "offset-cube" projection, a projection of the sphere that improves bandwidth efficiency over standard projections. Next, we describe our recent work, OpTile, a non-uniform tiling method applied to 360-degree projected video segments intended to more-precisely deliver portions of the 360-degree view that a user observes.

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. She has published many papers on top journals and conferences such as TPDS, TMM, INFOCOM, ICDCS, ACM Multimedia, WWW, IMC, ISLPED, etc. More information can be found at: www.cs.binghamton.edu/~yaoliu/.

Co-sponsored with GSO and partially paid for by student activity fees.

Pizza will be provided!