



COLLOQUIUM

W375 Westgate Building

Wednesday, October 3, 2:00-3:00 PM

By: Wei Gao, University of Pittsburgh

Host: Guohong Cao

Title: Supporting Mobile Virtual Reality with the Mobile and Edge Cloud

Abstract: Virtual Reality (VR) fundamentally improves the user's experience when interacting with the virtual world, and could revolutionarily transform designs of many interactive systems. However, providing VR from untethered mobile devices is difficult due to their limited local resources and computing capabilities, which prevent VR from being widely available anytime and anywhere. In this talk, I will present our recent research work that removes such constraints on the mobile VR performance by leveraging the power of the mobile and edge cloud. First, we experimentally investigated and verified the redundancy of rendering VR frames for different users running the same VR application, and further developed a mobile system framework that supports multi-user mobile VR over resource-constrained edge cloud by adaptively reusing the rendered VR frames. Second, we further augmented the mobile VR's ability of sensing and responding to the user's inputs, by enabling remote access to heterogeneous wearable sensing devices and hand-held VR controllers through a generic mobile cloud middleware. This talk will also discuss my ongoing work on other avenues of improving the performance of mobile VR.

Bio: Wei Gao is currently an Associate Professor in the Department of Electrical and Computer Engineering at University of Pittsburgh. Before that, he received his Ph.D. degree in Computer Science from the Pennsylvania State University in 2012, and was an Assistant Professor in the Department of Electrical Engineering and Computer Science at University of Tennessee Knoxville from 2012 to 2017. His research interests include wireless and mobile network systems, mobile and edge computing, Internet of Things, cyber-physical systems and big data. He has published more than 60 papers at top-tier journals and conference proceedings in these areas, and has served on the editorial board of multiple top-tier journals and the organizing and technical program committees of many conferences. He received the US National Science Foundation (NSF) CAREER Award in 2016.