



Multiple Description Coding for Uncompressed Video Streaming over 60GHz Networks

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Abstract

This massive unlicensed bandwidth in the 60GHz band provides great potential for supporting new bandwidth intensive applications. In this work, we investigate the problem of streaming uncompressed HD video over 60GHz networks. Considering the fact that bits of different positions in a pixel has different level of significance on recovering the original video frame, we employ a multiple description coding (MDC) technique based on Priority Encoding Transmission (PET) that exploits the different significance of the pixel bits, in order to improve the quality of reconstructed video frames by offering more protection for the most important bits. Besides, an interleaving based transmission scheme is used to combat the bursty losses due to blockage. A nonlinear integer programming problem is formulated and solved for determining the optimal parameters. The performance of the proposed scheme is validated with Matlab simulations.

Bio

Zhifeng He is a graduate student in the Department of Electrical and Computer Engineering, Auburn University. He received his Bachelor's degree in Electronic Information Science and Technology from Shandong University of Technology, Shandong, China in 2009. He received his Master's degree in Micro Electronics and Solid State Electronics from Beijing University of Posts and Telecommunications, Beijing, China in 2012. He is currently pursuing his doctoral degree at Auburn under the guidance of his advisor, Dr. Shiwen Mao. His active areas of research include cognitive radio networks, multimedia communications over wireless networks, 60 GHz networks, and optimization and performance issues in wireless networks.

MONDAY, OCTOBER 28, 2013, 4:00 P.M.
235 BROUN HALL