Wireless Engineering Research and Education Center

On Power Control for VBR Video Streaming in Cellular Networks

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Abstract

Variable bit rate (VBR) video offers more constant and superior quality over constant bit rate (CBR) video, however it has high rate variability and complex autocorrelation structure, making it hard for network transmission and control. To achieve the concept of ¡°green¡± communications, we focus on the energy efficiency of base stations (BS) for downlink video streaming. The seminar presents an optimal power allocation for streaming variable bit rate (VBR) compressed video in wireless network. By jointly considering the deterministic model for VBR traffic, channel fading and power control for wireless network, the problem is formulated to a stochastic optimization problem and the stochastic majorization is introduced for analyzing and solving the problem. The minimal downlink power during the whole streaming period is obtained, such that VBR video data can be transmitted to the users without producing playout buffer overflow and underflow.

Bio

Yingsong Huang received the B.S. and M.S. degrees from Chongqing University, Chongqing, China. Since 2007, he has been pursuing the Ph.D. degree in the Department of Electrical and Computer Engineering, Auburn University, Auburn, AL under the supervision of Prof. Shiwen Mao. His research interests include network modeling, control and optimization for wireless network.

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