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Scalable video coding (SVC) signal transmission scheme using TBS in an MC-CDMA system

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Mobile communication data has evolved voice and text to multimedia data as music, picture and video etc., which requires high data rate and high quality of multimedia data. Multi-Carrier Code Division Multiple Access (MC-CDMA) has focused on the next generation communication system that can realize high data rate and large capacity mobile communication systems under multi-path fading environments. In conventional, it has considered about how to improve the performance of BER with efficient data usage. However, it does not consider about transmitting the cross layer as Scalable Video Coding (SVC) signal using MC-CDMA system. Scalable Video Coding (SVC) is composed one base layer and several enhance layers group. Each video layer has differential priority (Base layer > 1st Enhance layer > 2nd Enhance layer). In addition, conventional research has focused on the perfect CSI for video allocation. However, it is difficult to obtain perfect CSI in practical systems. Because the wireless channel state has time-varying characteristics. Moreover, if it obtained a perfect CSI, the feedback delay time will be increasing. As a result, the system is degraded the performance of BER by increased delay time. Therefore, we proposed the SVC signal transmission scheme using Transmission Block Selection (TBS) with partial channel state information (PCSI) in an MC-CDMA system. Proposed TBS scheme provides the base layer with the best protection by best performance sub-block selection. Enhance layer selected next best performance sub-block. The proposed system can improve the Peak Signal to Noise Ratio (PSNR) performance of the video communication compared to that of a conventional system.

Biography

Hyoduck Seo has received his BS and MS degrees from the Department of Electronics and Radio Engineering at Kyung Hee University, Korea in 2011 and 2013 respectively. Currently he is a graduate student, studying toward his PhD degree at Kyung Hee University. His research interests include OFDM, MC-CDMA, MIMO, resource allocation and visible light communication systems.

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