

Duangjai Parnmark 2014: Performance Evaluation of Reconfigurable Random Interleavers with MAP Decoding on Mismatched Source-controlled for Video Sequence Transmission Systems. Master of Engineering (Electrical Engineering), Major Field: Electrical Engineering, Department of Electrical Engineering. Thesis Advisor: Associate Professor Srijidtra Charoenlarnnoppa, Ph.D. 228 pages.

This thesis presents the performance of reconfigurable random interleavers for video sequence transmission systems. The performance has been conducted by source transition probability matrix (STPM) with MAP decoding. A study will be converted video into frames encode image and decode image for beginning. This work emphasizes on alleviating symbol burst error, as a result of the impact from fading. This process uses YUV video (raw video) and converts to frames (PGM). Then, we apply MPEG-4 source coder to encode and decode images. Futuremore, we also use ring convolutional coders to be channel coder. We compute the matched STPM from each frame image. The average of those STPM is used as the mismatched STPM in MAP decoding. The simulation is done over Nakagami- m block fading channels with $m = 1.5, 2$ and 2.5 . By varying the interleaver's size, N_R of 32, 64, 128 and 143. We obtain the system performance at signal to noise ratio, $\overline{\gamma}_b = 3.75$ and 5 dB. The performance is indicated by PSNR and WER.

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Thesis Advisor's signature

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