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**A STUDY OF DIVERSITY IMAGE CODING USING IRREGULAR
INTERPOLATION**

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ABSTRACT

Diversity MD source coding enables little deterioration when the channel contains an undetermined number of erased packets. A simple coding scheme for only two packets is made up of two oversampling's and the use of delta-sigma quantization. The discrete cosine transform (DCT) domain was efficiently employed for JPEG-based image coding across a lossy packet network, with the interpolation and splitting into two descriptions taking place. While the classic source-channel separation technique is optimized for a particular number of erasures (say, K out of N), an MD coding scheme aims to improve reconstruction quality when more or all of N descriptions are received at the decoder, which is an important distinction. However, when the number of descriptions grows, noise rises due to the fact that the descriptions received no longer form a regular sample pattern. To avoid noise amplification, we updated the encoder's interpolation filter to look for both inter- and intra-block interpolation strategies. When all N packets arrive, a "irregular" interpolation filter performs better than a low-pass (LP) interpolation because it is more resistant to incoming packet patterns over all (K out of N) patterns. Using LP and irregular interpolation filters, we analyze the trade-off between center distortion (receiving all packets) and side distortion in this section (receiving K packets).