

## Abstract

*Ordered Binary Decision Diagrams* have been developed as a lossless compression algorithm on grayscale images where the image is considered as a Boolean function with karnaugh-map. In this final task for compression OBDD developed 24-bit color image (the image of testing with a bitmap format). OBDD lossless compression can reduce the file size compression. OBDD can produce lossless compression ratio value of 66.81096% in Ketegori 3D Images. OBDD with first YUV conversion will result in file sizes smaller than the OBDD lossless. OBDD can produce lossy compression ratio of 88.3957% for the category and the same test image. When compared with other compression algorithms, lossless OBDD is still better than the RLE, but not better than lossless JP2000, PNG, and TIFF. While lossy OBDD no better when compared with the ratio produced by JPEG compression. Average PSNR values in lossy OBDD worse if compared with the JPEG (0% Quality) for the conversion YUV 4:2:2, YUV 4:1:1, and YUV 4:2:0. In contrast to YUV 4:4:4 to produce PSNR value better than JPEG (100% Quality).

**Keywords :** OBDD, YUV, lossless, lossy, noise, PSNR