

## ABSTRACT

Digital development is growing rapidly, especially in the field of photography. The photographic process is capable of taking pictures with a high level of detail for further analysis. The more detailed the resulting image is, the larger the image size is. Therefore we need a way to reduce or compress the size of the data.

This study aims to obtain a comparison of the results of image compression with the compressive sensing method with two types of compression matrices, namely binary compression matrix and gaussian compression matrix. This compression method is used to reduce the data from the captured image. The compressive sensing reconstruction technique uses the orthogonal matching pursuit algorithm technique because it has a sharper level of accuracy in reconstruction.

The research was conducted, using a total of 30 face samples with JPG image format and the data resolution used 10 face image samples ( $64 \times 64$ ), 10 face image samples ( $128 \times 128$ ), and 10 face image samples ( $256 \times 256$ ).). To measure the performance of the compression system, a comparison of CS compression with Binary and Gaussian compression matrices was performed. The reconstruction was carried out using the OMP and Interpolation methods. Performance The reconstruction of the system was carried out using the RMSE and PSNR parameters. The Binary average value on the RMSE is 11.309 and at the PSNR is 31.093. Meanwhile, the average Gaussian value at RMSE was 575.394 and at PSNR 18.504. From the data obtained Binary compression is better than Gaussian compression.

**Keywords:** *Face image, compressive sensing, OMP, interpolation, RMSE, PSNR, compression, binary methods, and gaussian methods.*