

## **ABSTRACT**

*Abundant natural wealth makes people often ignore natural objects found in nature such as minerals and rocks. Without humans knowing there are many types of minerals found in nature. With the many types of minerals found in nature, then mineral exploration requires a long time and a lot of costs in separating between types of minerals and other minerals in one sample.*

*Therefore, in this study, the author has designed a system that can identify mineral classifications based on color and shape using Grey Level Co-occurrence Matrix (GLCM) for extraction features and Learning Vector Quantization (LVQ) for classification. GLCM is an extraction method that changes the original color of the image object to a gray color that has a degree of grayness. LVQ is a classification method where each output unit presents a class.*

*The results of this study are that mineral imagery can be classified using matrix processing applications using the GLCM and LVQ methods for chromite, quartz, calcite, and background in Sebuku region with 69.3% accuracy of a total 110 test images with computing time 3.8271 seconds. Whereas for the cassiterite, epodite, quartz, and background classes in the Bangka Belitung region with 68.4% accuracy of the total 110 test images with a computing time of 3.435 seconds.*

**Keywords :** *Grey Level Co-Occurrence Matrix, Learning Vector Quantization, and minerals*