

## **METODE PENGINDEKSAN GEOMETRIC HASHING UNTUK CONTENT BASED IMAGE RETRIEVAL**

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### **ABSTRACT**

This research proposes implementation and evaluation of geometric hashing for content based image retrieval as indexing method. Content based image retrieval (CBIR) is the application of computer vision to the image retrieval problem, that is, the problem of searching for digital images in databases. Content based image retrieval, uses the visual content of an image such as color, shape and texture to represent and index the image. The goal of most computer vision research is system should be able to recognize object in an image that are partially occluded or have undergone geometric transformations. Geometric hashing is an indexing method that recognized objects will invariant to geometric transformation (such as translation, rotation, and scaling). This research uses interest points to indicate the local features of an image and represent the shape of object in image. Thus, small region around interest points are selected as image patch for measure the color properties as feature vector. This research uses shape and color as visual features.

To evaluate, this research uses recall, precision and computational time. Recall and precision to evaluate the retrieval result. While indexing evaluated by computational time. Recall is the fraction of the relevant documents which has been retrieved. Precision is the fraction of the retrieved documents which is relevant. Computational time for indexing is the average time needed for indexing process both in query process and database process. The precision for geometric hashing method is 64%. Thus, the recall is 76%. At query process, average time needed for indexing is 22,44 second. But at database process, the average time needed is 20,71 second. Thus, average time needed for retrieve the query image based on geometric hashing is 26 second. Experimental result shows that geometric hashing is useful to retrieve images that object undergone geometric transformation.