ABSTRACT

FITRIA YUNINGSIH. Image Searching Using Heuristic Method for Image Retrieval System. Under the supervision of YENI HERDIYENI.

The development of image retrieval system and user demand for a fast and accurate search engine motivates research on finding efficient retrieval methods. Commonly, image searching process works through computing and comparing similarity value between input query and entire database images. This process is not efficient due to time-wasting during computation especially for large database. This research proposes heuristic method for image searching. The basic idea of this research deals with structural database content that reduces searching time. This research implements fitness landscape model. Fitness landscape is kind of directed graph whose labeled vertices and edges. Each node represents an image and each edge represents distance or similarity value of a node to other connected nodes. Similarity value between nodes are computed using combination of three image features, those are color, shape, and texture. Heuristic algorithm moves on these nodes with Breadth-First Search mechanism under certain constraints. Each visited node that fulfills the requirement will be retrieved as searching result. This retrieval result is then evaluated using recall precision parameter to get value of searching effectiveness. This experiment also computes retrieval time for each query. As the result, heuristic method obtains average retrieval time up to nine times faster compared with the non-heurisic one. Hence, this proposed method is promising to be used in image retrieval system because it provides fast image searching.

Keywords: image searching, fitness landscape, heuristic, content based image retrieval.