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Genetic algorithm-based relevance feedback for image retrieval using local similarity patterns. (English) [Zbl 1033.68692](#)

Inf. Process. Manage. 39, No. 1, 1-23 (2003).

Summary: Local similarity pattern (LSP) is proposed as a new method for computing image similarity. Similarity of a pair of images is expressed in terms of similarities of the corresponding image regions, obtained by the uniform partitioning of the image area. Different from the existing methods, each region-wise similarity is computed using a different combination of image features (color, shape, and texture). In addition, a method for optimizing the LSP-based similarity computation, based on genetic algorithm, is proposed, and incorporated in the relevance feedback mechanism, allowing the user to automatically specify LSP-based queries. LSP is evaluated on five test databases totalling around 2500 images of various sorts. Compared with both the conventional and the relevance feedback methods for computing image similarity, LSP brings in average over 11% increase in the retrieval precision. Results suggest that the proposed LSP method, allowing comparison of different image regions using different similarity criteria, is more suited for modeling the human perception of image similarity than the existing methods.

MSC:

[68U10](#) Computing methodologies for image processing

[68P20](#) Information storage and retrieval of data

Cited in **3** Documents

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[Image retrieval](#); [Image similarity](#); [Relevance feedback](#); [Genetic algorithm](#)

Software:

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