SOFT REGION CORRESPONDENCE ESTIMATION FOR GRAPH–THEORETIC IMAGE RETRIEVAL USING QUADRATIC PROGRAMMING APPROACH (FriPmPO1)

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Abstract : This paper proposes employing a graph–theoretic approach to estimate the region correspondence between two images. We represent each image as an attributed undirected graph and transform the image matching problem into an inexact graph matching problem. We formulate the estimation of the soft matching matrix between two graphs as a quadratic programming problem, and apply KKT (Karush–Kuhn–Tucker) conditions and the modified simplex algorithm to solve the constrained optimization problem. With the soft matching matrix, we are capable to integrate both the region correspondence and low–level visual features into an effective matching measurement for image matching. Experiments have been conducted on image retrieval to show the effectiveness of the proposed estimation algorithm.