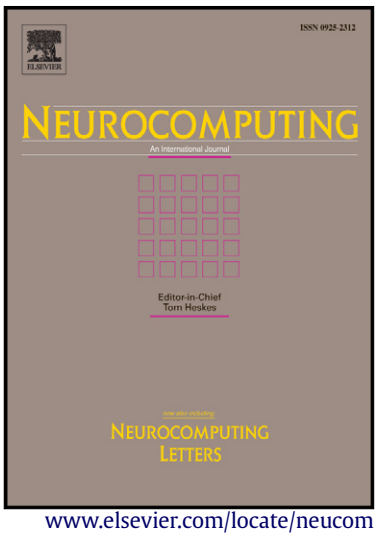

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Interactive Image Retrieval Using Constraints

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Abstract

The proper use of constraints improves the data clustering performance. In this paper, we propose a novel interactive image retrieval framework using constraints. First, we extract the user's region of interest (ROI) from queries by simple user interaction using adaptive constraints-based seed propagation (ACSP), and obtain initial retrieval results based on the ROI. Then, we improve the retrieval results by active learning from the user's relevance feedback using ACSP. Since ACSP is very effective in propagating the user's interactive information of constraints by employing a kernel learning strategy, it successfully learns the correlation between low-level image features and high-level semantics from the ROI and relevance feedbacks. Experimental results demonstrate that the proposed framework remarkably improves the image retrieval performance by ACSP-based constraint propagation in terms of both effectiveness and efficiency.

Keywords: Active learning, adaptive constraint propagation, interactive image retrieval, pairwise constraints, relevance feedback, seed propagation.

1. Introduction

Image retrieval has received much attention in the past decades and great advances have been made by researchers. Content-based image retrieval (CBIR)