

ECE 533 Project
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Implementation of Matching and Retrieval System Based on Vocabulary and Grammar of Color Patterns

Problem Statement:

Human beings describe images using the color, texture and shapes of objects within the image. However, a generalized understanding of images based on these criteria is a difficult problem as these judgments are, in a majority of cases, largely subjective. Since human beings have no standardized notion of similarity, we must incorporate a set of rules that best characterize human judgment in a specific application domain and build a system based on this rule set, which tries to emulate a human perceiver.

Proposed Methodology:

As color and texture are the two fundamental aspects of human perception, perception, we propose to utilize a set of techniques for search and manipulation of color patterns based on vocabulary and grammar of color patterns. There are a great many applications for pattern retrieval in: arts and museums, fashion, garment and design industry, digital libraries, and digital stock photography. Therefore, there is a need for an “intelligent” visual information retrieval system that will perform pattern matching in these applications. However, regardless of the application domain, to accomplish retrieval successfully it is necessary to understand what type of color and texture information humans actually use and how they combine them in deciding whether two patterns are similar. In the current project, our aim is to detect basic visual categories that people use in judgment of similarity, and then to design a computational model which accepts one (or more) texture images as input, and depending on the type of query, produces a set of choices that follow human behavior in pattern matching.

References:

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