Brand Logo Recognition based on Augmented SURF Algorithm

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Abstract

A lot of work has been done on object and shape detection/recognition, image retrieval and geometric blur based object recognition. Logo recognition can be termed as a sub field with in the object recognition realm. Recognition of brand logos & trademarks has started to become a need in the fast evolving world of computing. Providing user helpful information such as a map, marketing deals, closest stores etc. Web based portals and e-Businesses can also benefit from the logo recognition in a variety of ways such as brand infringement detection, content based search etc.

There are hundreds of thousands of brand logos out there in the market, which makes the task of recognizing & differentiating a logo from the various other logos very challenging. Couple this to the fact that every logo image may be of a different orientation, texture & style and you get a computational intensive problem to solve at hand. The problem with the existing learning based methods is that they extract the complete image for training & detection which negatively impacts the performance

This thesis suggests a structured approach to recognition of a logo and subsequent processing on the metadata associated with the logo to present useful & actionable information to a consumer. Here we have proposed and tested some changes in the SURF algorithm. Preprocessing the image, extracting the image feature set and storing them in the data base have greatly improved the performance and image detection and recognition. The Enhanced SURF detector is fast and relatively accurate image detector showing good accuracy for most brand logos. The accuracy of the detector has been boosted by incorporating image normalization technique that although increase the processing time by a small factor but improve the accuracy by a good margin.

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