Global Journal of Computer Science and Technology
Graphics & Vision
Volume 13 Issue 7 Version 1.0 Year 2013
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 0975-4172 & Print ISSN: 0975-4350

Content base Image Retrieval by using Bayesian Algorithm to Improve the Quality on the bases of Color, Texture and Density

By Ekta Rajput & Hardeep Singh Kang
RIMT-IET Mandigobindgar Punjab, India

Abstract - Content Based Image Retrieval in Medical (CBIRM) a technique for retrieving image on the basis of automatically derived features such as color, texture and shape to index images with minimal human intervention. This document is based on the research work done in the field of Content based image retrieval. Color, texture and shape information have been the primitive image descriptors in content based image retrieval systems CBIRM consists of retrieving the most visually similar images to a given query image from a database of medical images Various algorithm are define in CBIR but we can use Bayesian algorithm to reduce the noise from an image.

Keywords : *medical informatics, content based image retrieval in medical (CBIRM), bayesian algorithm.*

GJCST-F Classification: *I.4.5*

Strictly as per the compliance and regulations of:

Content base Image Retrieval by using Bayesian Algorithm to Improve the Quality on the bases of Color, Texture and Density

Ekta Rajput [α] & Hardeep Singh Kang [σ]

Abstract - Content Based Image Retrieval in Medical (CBIRM) a technique for retrieving image on the basis of automatically derived features such as color, texture and shape to index images with minimal human intervention. This document is based on the research work done in the field of Content based image retrieval. Color, texture and shape information have been the primitive image descriptors in content based image retrieval systems CBIRM consists of retrieving the most visually similar images to a given query image from a database of medical images Various algorithm are define in CBIR but we can use Bayesian algorithm to reduce the noise from an image.

Keywords : medical informatics, content based image retrieval in medical (CBIRM), bayesian algorithm.

I. Introduction

Medical informatics is the sub-discipline of health informatics that directly impacts the patient physician relationship. It focuses on the information technology that enables the effective collection of data using technology tools to develop medical knowledge and to facilitate the delivery of patient medical care. The goal of medical informatics is to ensure access to critical patient medical information at the precise time and place it is needed to make medical decisions. Medical informatics also focuses on the management of medical data for research and education. CBIR Content based image retrieval Content based image retrieval (CBIR), also known as query by image content (QBIC) and content-based visual information retrieval (CBVIR) is the application of computer vision techniques to the image retrieval problem, that is, the problem of searching for digital images in large databases. Content based image retrieval is opposed to concept based approached. "Content-based" means that the search will analyze the actual contents of the image rather than the metadata such as keywords, tags, and/or descriptions associated with the image.

'Content' in this context might refer to colors, shapes, textures, or any other information that can be derived from the image itself. Thus a system that can filter images based on their content would provide better indexing and return more accurate results. The term Content-Based Image Retrieval (CBIR) seems to have originated in 1992, when it was used by T. Kato to describe experiments into automatic retrieval of images from a database, based on the colors and shapes present. Since then, the term has been used to describe the process of retrieving desired images from a large collection on the basis of syntactical image features. The techniques, tools and algorithms that are used originate from fields such as statistics, pattern recognition, signal processing, and computer vision.

A better way to search is Content-based Image Retrieval.

1. CBIR consists of two elements:
   a. A feature extraction algorithm that describes the content of each image.
   b. A retrieval algorithm that uses the features to retrieve images according to a query.
2. Successful retrieval algorithms always work interactively with the user by a process called relevance feedback.

Feature Extraction 1

1. A computer extracts features of an image, to do with colour, texture, location and shape of objects.
2. These features (hopefully) describe well the content (or semantics) of the image.
3. This can be done off-line and needs to be done only once.
4. Searching the database is based on these features and a "similarity measure" between them.
5. This is a decreasing function of a distance between their features.

Feature Extraction 2

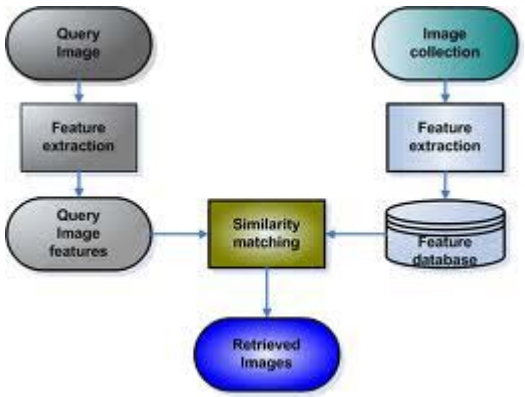
1. An image X is a matrix {Xij | i = 1, . . . ,n1; j = 1, . . ., n2};
2. Xij is colour of pixel (i, j); colour is a 3-vector, for example in RGB-space Xij = (Rij, Gij, Bij)∈ {0..255} ^ 3.
3. Feature vector of length d is f (X) ∈ Rd;
4. Distance between images X1 and X2 is d(X1, X2) = k f (X1) − f (X2) k;
5. Similarity measure s(X1, X2) = exp{d(X1, X2)) or d(X1, X2) −1 etc.

a) Bayesian Algorithm The Bayesian Classification represents a supervised learning method as well as a statistical method for classification. It can solve

Author : E-mail : ektathakur87@gmail.com

diagnostic and predictive problems. This Classification is named after Thomas Bayes (1702-1761), who proposed the Bayes Theorem. Bayesian classification provides practical learning algorithms and prior knowledge and observed data can be combined. Bayesian Classification provides a useful perspective for understanding and evaluating many learning algorithms. It calculates explicit probabilities for hypothesis and it is robust to noise in input data. Bayesian algorithm is used to reduce the noise from an image.

Block Diagram



II. Methodology

The content-based image retrieval (CBIR), relevance feedback has been put on many efforts for the past few years, a new relevance feedback approach with progressive leaning capability. It is based on a Bayesian classifier and treats positive and negative feedback with different strategies. According to the Bayesian algorithm firstly we take the image and applying the thresholding technique on that image .After the thresholding technique the given size of the image is changed or we can say that input data. Bayesian algorithm is used to reduce the noise from an image.

III. Conclusion

Analysis and improvement in CBIR using Bayesian approach by analyzing on the basis of texture, histogram equalization, edge and color. We have proposed a Bayesian method for image retrieval using color, texture and shape features within a multiresolution multigrid framework. Features drawn from conditional co-occurrence histograms computed by using image and its complement in RGB color space, serve as color and texture descriptors Improving the quality and reduce the noise of retrieved image. The Bayesian algorithm provide the better result as compare to all other CBIR algorithm. In the future we can also work on DICOM images to improve the quality.

References Références Referencias

1. P. S. Hiremath and Jagadeesh Pujari "Content Based Image Retrieval based on Color, Texture and Shape features using Image and its complement",. *International Journal of Computer Science and Security, 1* (4).
2. Nidhi Singhai and prof. Shishkir K. Shandilya (2010). "Content Based image retrieval System". *4*.
3. Linnjun yang and Bo Geng, (2011). "object reterival using visual query context". *13*.
4. Derven Zhuang and Shoujue Wang. (2010). "Context based image retrieval based on integrating region segmentation and relevance feedback".
5. Gulfishan Firdose Ahmed, Raju Barskar, Jyoti Bharti and Nitin Singh Rajput, (2010). "content base image retrieval using Fast phong Shading".
6. Katherine A. Heller and Zoubin Ghahraman (2006). "A simple Bayesian framework for content based image retrieval",.
7. Rajshree S. Dubey, Rajnish Choubey and joy Bhattacharjee, (2010). "Multifeature Content Based Image Retrieval". *2*.
8. Sh. Akbarpour, (2013). "A review on content based image retrieval in medical diagnosis". *5*.

Global Journals Inc. (US) Guidelines Handbook 2013

www.GlobalJournals.org