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# Tagging Images and Ranking Tags

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***Abstract:** The number of images are more in different social media and widely circulating in social media so the image retrieval and annotation research has become the interesting topic in todays world.the main short coming of this approach is it requires more number of images which are clear that means training images are required as to predict the tag or to add the tag to the particular image and the irrelavant or relavant tags can be monitored by the admin at the back end.this approach is not just providing the binary decision to the image tags it also provides the tag ranking.the ranking concept helps to provide tags in descending order. Tag ranking aims to learn a ranking function that puts the tags of the image in descending order. In the simplest form, it learns a scoring function to the images which iare having high number of tags with high rank.when the tag is going to be added the rank will get incremented. the irrrelavant or relavant tags can be monitored by the admin at the back end.*

***Keywords:** KDE,*

## I. INTRODUCTION

Instead of having to make a binary decision for each tag, our approach ranks tags in the descending order of their relevance to the given image, significantly simplifying the problem.

We address this limitation by developing a novel approach that combines the strength of tag ranking with the power of matrix recovery.

Main concepts used is

- Ranking of tags
- Low-rank
- Annotation of image

- **Ranking of tags:**

Tag ranking aims to learn a ranking function that puts relevant tags in front of the irrelevant ones. In the simplest form, it learns a scoring function that assigns larger values to the relevant tags than to those irrelevant ones. In the authors develop a classification framework for tag ranking that computes tag scores for a test image based on the neighbour voting. It was extended in [46] to the case where each image is represented by multiple sets of visual features. Liuet al. Utilizes the Kernel Density Estimation (KDE) to calculate relevance scores for different tags, and performs a random walk to further improve the performance of tag ranking by exploring the correlation between tags. Similarly, Tang et al. Proposed a two-stage graph-based relevance propagation approach. In a two-view tag weighting method is proposed to effectively exploit both the correlation among tags and the dependence between visual features and tags. In a max-margin riffled independence model is developed for tag ranking. As mentioned in the introduction section, most of the existing algorithms for tag ranking tend to perform poorly when the tag space is large and the number of training images is limited.

- **Low-rank:**

In mathematics, low-rank approximation is a minimization problem, in which the cost function measures the fit between a given matrix (the data) and an approximating matrix (the optimization variable), subject to a constraint that the approximating matrix has reduced rank. The problem is used for mathematical modelling and data compression. The rank constraint is related to a constraint on the complexity of a model that fits the data. In applications, often there are other constraints on the approximating matrix apart from the rank constraint, e.g., non-negativity and Hankel structure.

We study the rank, trace-norm and max-norm as complexity measures of matrices, focusing on the problem of fitting a matrix with matrices having low complexity. We present generalization error bounds for predicting unobserved entries that are based on these measures. We also consider the possible relations between these measures. We show gaps between them, and bounds on the extent of such gaps.relations between these measures.

- **Annotation of image:**

Image annotation aims to find a subset of keywords/ tags that describes the visual content of an image. It plays an important role in bridging the semantic gap between low-level features and high-level semantic content of images. Most automatic image annotation algorithms can be classified into three categories generative models that model the joint distribution between tags and visual features, discriminative models that view image annotation as a classification problem, and search based approaches. Both mixture models and topic models, two well known approaches in generative model, have been successfully applied to automatic image annotation. In a Gaussian mixture model is used to model the dependence between keywords and visual features. In kernel density estimation is applied to model the distribution of visual features and to estimate the conditional probability of keyword assignments given the visual features. Topic models annotate images as samples from a specific mixture of topics, which each topic is a joint distribution between image features and annotation keywords. Since a large number of training examples are needed for estimating the joint probability distribution over both features and keywords, the generative models are unable to handle the challenge of large tag space with limited number of training images.

Discriminative models, views image annotation as a multi-class classification problem, and learns one binary classification model for either one or multiple tags. A structured max-margin algorithm is developed in to exploit the dependence among tags. One problem with discriminative approaches for image annotation is imbalanced data distribution because each binary classifier is designed to distinguish image of one class from images of the other classes. It becomes more severe when the number of classes/tags is large.

## II. IMAGE PROCESSING

- In imaging science, image processing is processing of images using mathematical operations by using any form of signal processing for which the input is an image, a series of images, or a video, such as a photograph or video frame; the output of image processing may be either an image or a set of characteristics or parameters related to the image. [1] Most image-processing techniques involve treating the image as a two-dimensional signal and applying standard signal-processing techniques to it. Images are also processed as three-dimensional signals where the third-dimension being time or the z-axis.
- Image processing usually refers to digital image processing, but optical and analog image processing also are possible. This article is about general techniques that apply to all of them. The acquisition of images (producing the input image in the first place) is referred to as imaging.
- [2]Closely related to image processing are computer graphics and computer vision. In computer graphics, images are manually made from physical models of objects, environments, and lighting, instead of being acquired (via imaging devices such as cameras) from natural scenes, as in most animated movies. Computer vision, on the other hand, is often considered high-level image processing out of which a machine/computer/software intends to decipher the physical contents of an image or a sequence of images (e.g., videos or 3D full-body magnetic resonance scans).
- In modern sciences and technologies, images also gain much broader scopes due to the ever growing importance of scientific visualization (of often large-scale complex scientific/experimental data). Examples includemicroarray data in genetic research, or real-time multi-asset portfolio trading in finance.
- Image processing is a method to perform some operations on an image, in order to get an enhanced image or to extract some useful information from it. It is a type of signal processing in which input is an image and output may be image or characteristics/features associated with that image. Nowadays, image processing is among rapidly growing technologies. It forms core research area within engineering and computer science disciplines too.
- Image processing basically includes the following three steps:
  - Importing the image via image acquisition tools,
  - Analyzing and manipulating the image,
  - Output in which result can be altered image or report that is based on image analysis.

- There are two types of methods used for image processing namely, analogue and digital image processing. Analogue image processing can be used for the hard copies like printouts and photographs. Image analysts use various fundamentals of interpretation while using these visual techniques. Digital image processing techniques help in manipulation of the digital images by using computers. The three general phases that all types of data have to undergo while using digital technique are pre-processing, enhancement, and display, information extraction.
- In this lecture we will talk about a few fundamental definitions such as image, digital image, and digital image processing. Different sources of digital images will be discussed and examples for each source will be provided. The continuum from image processing to computer vision will be covered in this lecture. Finally we will talk about image acquisition and different types of image sensors

## III. PROPOSED SYSTEM

- In this work, we have proposed a tag ranking scheme for image annotation.
- We first present the proposed framework for tag ranking that is explicitly designed for a large tag space with a limited number of training images.
- The proposed scheme casts the tag ranking problem into a matrix recovery problem and introduces trace norm regularization to control the model complexity.
- Extensive experiments on image annotation and tag ranking have demonstrated that the proposed method significantly outperforms several state-of-the-art methods for image annotation especially when the number of training images is limited and when many of the assigned image tags are missing.

*Tag ranking:*

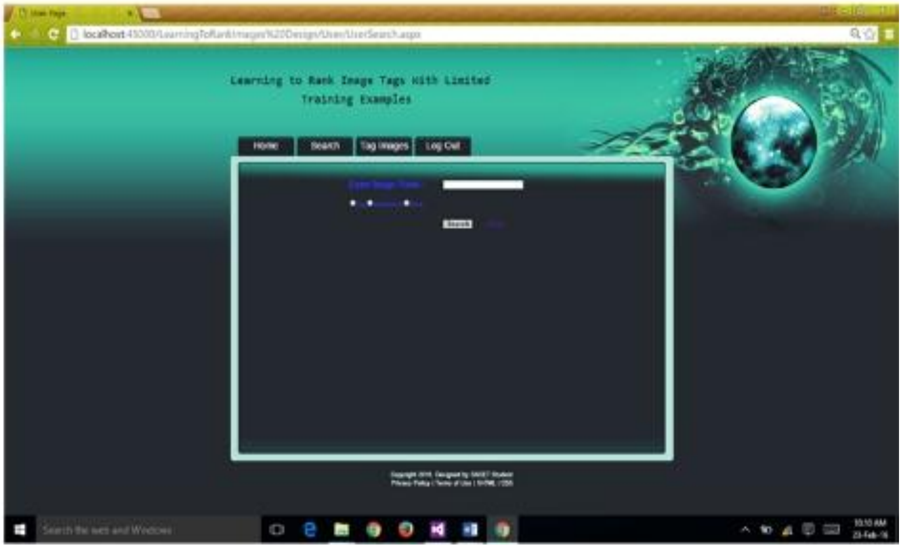
- Tag ranking aims to learn a ranking function that puts relevant tags in front of the irrelevant ones. In the simplest form, it learns a scoring function that assigns larger values to the relevant tags than to those irrelevant ones.

**Advantages of proposed system**

- The proposed scheme casts the tag ranking.
- The tags number is not a constraint.
- Extensive experiments on image annotation and tag ranking have demonstrated that the proposed method significantly outperforms several state-of-the-art methods for image annotation especially when the number of training images is limited and when many of the assigned image tags are missing.
- There is no number of tags limitation.

## IV. RESULTS AND DESCRIPTION

USER SEARCH:




TAG IMAGES:


## V. CONCLUSION AND FUTURE WORK

Extensive experiments on image annotation and tag ranking have demonstrated that the proposed method significantly outperforms several state-of-the-art methods for image annotation especially when the number of training images is limited and when many of the assigned image tags are missing.In the future, the project is plan to apply the proposed framework to the image annotation problem when image tags are acquired by crowd souring that tend to be noisy and incomplete and the irrelevant tags concern is taken.

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