Survey paper on object identification using Mobile Visual Search

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***Abstract*: Mobile Visual Search applications are emerging that enable users to sense their surroundings with smart phones. This study includes that this type of search engine uses techniques of query by example or Image query by example, which use the content, shape, texture and colour of the image to compare them in a database and then deliver the approximate results from the query. In this paper first we propose MVS (Mobile Visual Search). Second we have our basic component neural networks and discuss about the architecture of the model with CNN image classification. Optical Character Recognition, or OCR is used, this method converts a scanned image into text.**

Index Terms: Mobile Visual Search, Neural Networks, CNN, Optical Character Recognition

I. Introduction

A mobile image search is a type of search engine designed exclusively for mobile phones. Mobile Visual Search solutions enable you to integrate image recognition software capabilities into your own branded mobile applications. Mobile Visual Search (MVS) bridges the gap between online and offline media, enabling you to link your customers to digital content.

Methods from the field of machine learning have been successful in tackling a number of tasks in imaging, from image reconstruction or processing to predictive modelling. The ever growing availability of data and the improving ability of algorithms to learn from them has led to the rise of methods based on neural networks to address most of these tasks with higher efficiency and often superior performance than previous, "shallow" machine learning methods.

II. Literature Survey

1. The text in natural pictures is identified and classified which was a problem due to low-quality image, typical fonts, blurred pictures, un-clear words etc. The connected regions are chain together in relative positions and by use of engine for text classification the chains filtered with low confidence scores of classification.
2. The text can be recognised from a printed one to desired format which is computer compatible. For converting binary image from gray scale image the pre-processing is done. Noisy signals are removed from images by noise reduction. For line by line segments, separation was used. The database contained in the classification provides comparison. The characteristics of characters are extracted through calculations.
3. For image classification the CNN or Convolutional Neural Network was used which a Deep Learning algorithm. SUN dataset and UC Merced Land Use Dataset used in remote sensing were employed to test the algorithm and find out that the CNN gives fairly good classification accuracy for all the datasets tested.
4. For transforming documents in electronic format from paper format the DIA or Document Image Analysis need to be prepared which is a character recognition mechanism. From images to text recognition method is developed for better understanding of the reader. This is done by using different processing module in a particular sequence.
5. Use of algorithm of machine learning for classification of images automatically. For this CNN was used. Grey scale images are classified by Digit of MNIST dataset. The highest accuracy of 98% was achieved by training the images with CNN.
6. Marathi script written in hand-written is recognised through OCR or Optical Character Reader, by streamlined OCR framework. The projection profile segmentation technique was used. An efficient CT was used to get the characters of features from the pre-processing image. The Marathi script segmented in the line characters and words. In comparison to prevailing techniques of FFS and BS, this method gives accuracy, specificity and F-score as 99.3%, 90%, 91%, 89.5%, 99.7% and 89.9% respectively.
7. Object detection tasks are more difficult to analyse the image classification with integration of CNN, SIFT, a high accuracy output is obtained with small sample of data requirement for training of model. The simulation results are found with better accuracy is comparison to CNN method. It is prepared to use pipelined implementation on an aggregate CPU and GPU platform.

III. Table of Comparison

Author	Year	Description
1. Chaithanya C.P, Manohar .N, Issac B. A	2019	The text in natural pictures is identified and classified which was a problem due to low-quality image, typical fonts, blurred pictures, un-clear words etc. The connected regions are chain together in relative positions and by use of engine for text classification the chains filtered with low confidence scores of classification.
2. Chowdhury Md. M, Chakraborty T and Karmakar. S	2017	The text can be recognised from a printed one to desired format which is computer compatible. For converting binary image from gray scale image the pre-processing is done. Noisy signals are removed from images by noise reduction. For line by line segments, separation was used. The database contained in the classification provides comparison. The characteristics of characters are extracted through calculations.
3. Jaswal .D, Sowmya.V and.Soman K.P	2014	For image classification the CNN or Convolutional Neural Network was used which a Deep Learning algorithm. SUN dataset and UC Merced Land Use Dataset used in remote sensing were employed to test the algorithm and find out that the CNN gives fairly good classification accuracy for all the datasets tested.
4. Manwatkar M. P and Yadav H.S	2015	For transforming documents in electronic format from paper format the DIA or Document Image Analysis need to be prepared which is a character recognition mechanism. From images to text recognition method is developed for better understanding of the reader. This is done by using different processing module in a particular sequence.
5. Ramprasath M and Anand V .M	2018	Use of algorithm of machine learning for classification of images automatically. For this CNN was used. Grey scale images are classified by Digit of MNIST dataset. The highest accuracy of 98% was achieved by training the images with CNN.
6. Ramteke P. S, Gurjar A. A and Deshmukh S. D	2018	Marathi script written in hand-written is recognised through OCR or Optical Character Reader, by streamlined OCR framework. The projection profile segmentation technique was used. An efficient CT was used to get the characters of features from the pre-processing image. The Marathi script segmented in the line characters and words. In comparison to prevailing techniques of FFS and BS, this method gives accuracy, specificity and F-score as 99.3%, 90%, 91%, 89.5%, 99.7% and 89.9% respectively.
7. Tripathi A, Ajay Kumar T. V, Dhansetty K T, Selva K. J	2018	Object detection tasks are more difficult to analyse the image classification with integration of CNN, SIFT, a high accuracy output is obtained with small sample of data requirement for training of model. The simulation results are found with better accuracy is comparison to CNN method. It is prepared to use pipelined implementation on an aggregate CPU and GPU platform.

IV. Conclusion

An accurate and efficient object identification system has been developed which achieves comparable metrics with the existing state-of-the-art system. This project uses recent techniques in the field of computer vision and neural networks. Custom dataset was created using labelling and the evaluation was consistent. An important scope would be to train the system on a video sequence for usage in tracking applications. Addition of a temporally consistent network would enable smooth detection and more optimal than per-frame detection.

References

[1] Chaithanya C, Manohar N, Ajay Bazil Issac (2019) "Automatic Text Detection and Classification in Natural Images".

[2] Tripathi A, Ajay Kumar T.V ,Dhansetty K.T ,Selva K.J (2018) "Time Object Detection using CNN".

[3] Ramteke P. S, Gurjar A.A, Deshmukh S.D(2018) "A Streamlined OCR System for Handwritten Marathi Text Document Classification and Recognition Using SVM-ACS Algorithm".

[4] Ramprasath M, Vijay Anand M(2018) "Image Classification using Convolutional Neural Networks".

[5] Chowdhury Md .M, Chakraborty .T and Karmakar .S(2017)"Text Recognition using Image Processing".

[6] Manwatkar M. P , Yadav H.S(2015) "Text recognition from images".

[7] Jaswal D, Sowmya.V, Soman K.P(2014) "Mobile Visual Search".