

DEVANAGARI CHARACTER RECOGNITION IN THE WILD

by

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Certificate

This is to certify that the thesis entitled “*Devanagari Character Recognition in the Wild*” being submitted by **O. V. Ramana Murthy** for the award of the degree of the **Doctor of Philosophy** to the Indian Institute of Technology Delhi is a record of the bonafide research work he has carried out under my supervision. The results contained in this have not been submitted to any other University or Institute for the award of a degree or diploma.

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Abstract

Character recognition is a means of automatic recognition of text in the written form to facilitate faster and better performance. However, text can be seen around us called text in the wild like in street signs, shop names, product advertisements, posters on streets etc. The text in the wild is prone to multiple sources of noise and these make the recognition extremely difficult in the unconstrained setting in which the text in the wild is captured. The problem gets more complicated while developing the text recognition methodologies for different scripts because there is no general solution to this problem and recognizing text in some scripts can be tougher than in others. This thesis proposes methods for recognizing the Devanagari characters from the images in the wild.

A detailed study of the Devanagari script character recognition using the state-of-the-art character recognition and object recognition tools is made to bring out the issues in the straightforward application of such tools to the challenging problem at hand. A methodology to segment the Devanagari words acquired from the natural scenes into characters is presented. The results are encouraging although on a small database.

A part-based model approach is presented for recognizing the Devanagari characters in the wild. This method particularly alleviates the problem of getting sufficient training samples from the real images for learning a model. The proposed approach gives competitive performance on the training database of the machine printed characters than that obtained from the state-of-the-art approaches.

The existing classifiers like Nearest Neighbor and SVM are computationally constrained by a large number of comparisons, and to address these issues a Fuzzy Model based classifier is developed.

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