

## Accepted Manuscript

Script Independent Approach for Multi-Oriented Text Detection in Scene Image

Sounak Dey , Palaiahnakote Shivakumara , K.S. Raghunandan ,  
Umapada Pal , Tong Lu , G. Hemantha Kumar ,  
Chee Cheng Chan

PII: S0925-2312(17)30385-5  
DOI: [10.1016/j.neucom.2017.02.061](https://doi.org/10.1016/j.neucom.2017.02.061)  
Reference: NEUCOM 18135



To appear in: *Neurocomputing*

Received date: 17 November 2015  
Revised date: 7 November 2016  
Accepted date: 22 February 2017

Please cite this article as: Sounak Dey , Palaiahnakote Shivakumara , K.S. Raghunandan , Umapada Pal , Tong Lu , G. Hemantha Kumar , Chee Cheng Chan , Script Independent Approach for Multi-Oriented Text Detection in Scene Image, *Neurocomputing* (2017), doi: [10.1016/j.neucom.2017.02.061](https://doi.org/10.1016/j.neucom.2017.02.061)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Script Independent Approach for Multi-Oriented Text Detection in Scene Image

<sup>a</sup>Sounak Dey, <sup>b</sup>Palaiahnakote Shivakumara, <sup>c</sup>K. S. Raghunandan, <sup>a</sup>Umapada Pal, <sup>d</sup>Tong Lu, <sup>c</sup>G.  
Hemantha Kumar, <sup>b</sup>Chee Cheng Chan

<sup>a</sup>Computer Vision and Pattern Recognition Unit, Indian Statistical Institute, Kolkata, India

<sup>b</sup>Faculty of Computer Science and Information Technology, University of Malaya, KL, Malaysia

<sup>c</sup>Department of Studies in Computer Science, University of Mysore, Karnataka, India.

<sup>d</sup>National Key Lab for Novel Software Technology, Nanjing University, Nanjing, China

dey.sounak@gmail.com; hudempsk@yahoo.com; raghu0770@gmail.com; umapada@isical.ac.in;  
lutong@nju.edu.cn; ghk.2007@yahoo.com; cs.chan@um.edu.my.

## Abstract:

Developing a text detection method which is invariant to scripts in natural scene images is a challenging task due to different geometrical structures of various scripts. Besides, multi-oriented of text lines in natural scene images make the problem more challenging. This paper proposes to explore Ring Radius Transform (RRT) for text detection in multi-oriented and multi-script environments. The method finds component regions based on convex hull to generate radius matrices using RRT. It is a fact that RRT provides low radius values for the pixels that are near to edges, constant radius values for the pixels that represent stroke width, and high radius values that represent holes created in background and convex hull because of the regular structures of text components. We apply k-means clustering on the radius matrices to group such spatially coherent regions into individual clusters. Then the proposed method studies the radius values of such cluster components that are close to the centroid and far from the centroid to detect text components. Furthermore, we have developed a Bangla dataset (named as ISI-UM dataset) and propose a semi-automatic system for generating its ground truth for text detection of arbitrary orientations, which can be used by the researchers for text detection and recognition in the future. The ground truth will be released to public. Experimental results on our ISI-UM data and other standard datasets, namely, ICDAR 2013 scene, SVT and MSRA data, show that the proposed method outperforms the existing methods in terms of multi-lingual and multi-oriented text detection ability.

**Keywords:** Ring radius transform, Medial axis values, Spatially coherent regions, Bangla text detection, Script independent, ISI-UM dataset.

## 1. Introduction

Download English Version:

<https://daneshyari.com/en/article/4947523>

Download Persian Version:

<https://daneshyari.com/article/4947523>

[Daneshyari.com](https://daneshyari.com)