

Segmentation and background detection for human identification

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Abstract—Image processins is a set of fundamental research in areas of image pattern based recognition. In this research, Segmentation methods are the core to analyze the given Image. This document present our method of segmentation and this use for a body detection in a video. In this paper, we will show you our method and part of code, and we will compare it to other existing method.

Index Terms—segmentation, body detection

I. INTRODUCTION

Image analysis is a branch of computer science with increasing application, whether in the field of video games, medicine or data protection. All of its technologies use an image segmentation method, setting up new segmentation methods adapted to these different applications is therefore an important part of the work to be carried out. our work is therefore moving in this direction in order to obtain convincing results in the detection of moving human bodies on a video

II. IMAGE SEGMENTATION

Image Segmentation is the first stage of processing an image. For the segmentation to be deemed effective, many criteria must be met. Among these criteria, we can notably note the speed of execution as well as the precision of the detected zones. As I have said, Image Segmentation is an important field of image analysis and for a better comprehension of it image segmentation is Classified in four type :

- Segmentation by edges detection : This type of segmentation try to detect the contours of different objects in order to identify them. In this type of segmentation, we can notice : Canny's edges detections.
- Segmentation by thresholding : This type of segmentation try to detect the colour of different objects in order to identify them. With this technique, we will try to separate an object in a color spectrum of the rest of the objects. In this type of segmentation, we can notice : Adaptive thresholding techniques.
- Segmentation by region based: This type of segmentation try to detect regions composed of pixels with the same

characteristics. In this type of segementation, we can notice : Single Seeded Region Growing.

- Segmentation by Feature Based Clustering : This type of segmentation try to detect cluster composed of pixels with the same characteristics. The differences with the Segmentation by region based is that a cluster is not necessarily composed of adjacent pixels, unlike a region. In this type of segementation, we can notice : K-means Algorithm.

In this Paper, the methods used is a Single Seeded Region Growing. We will compare it to a K-means Algotithm and a wattershed algorithm, implemented by the library opencv.

A. Single Seeded Region Growing

This segmentation method is based on a selection of random pixels. Thus, during the execution of this algorithms, a certain number of pixels will be selected in order to serve as a center for our region. Once these points have been selected, the algorithm will make the regions magnify by processing the pixels around the region. A pixel with similar characteristics is added to the region and removed from the list of available pixels. After this phase, regions with similar characteristics and being side by side are merged together.

This type of algorithm is usually applied to a grayscale image.

B. OpenCV K-means algorithm

In order to be able to execute this algorithm, we must first define the number of clusters with which the image will be cut out. After this has been done, the algorithm will place points, called the center of the cluster, and will add the pixels of the image to the clusters while trying to minimize a function. In order to be able to execute this algorithm, we must first define the number of clusters with which the image will be cut out. After this has been done, the algorithm will place points, called the center of the cluster, and will add the pixels of the image to the clusters while trying to minimize a function.

This type of algorithm is usually applied to a colored image.

C. OpenCV watershed algorithm

In principle of this algorithm, each grayscale image can be seen as a heightmap where high intensity denotes peaks while low intensity denotes valleys. You start filling every isolated valleys with different colored water (labels). As the water rises, depending on the peaks nearby, water from different valleys, obviously with different colors will start to merge. However, we do not want all regions to merge. For this, OpenCv implements an algorithm or have defined in advance that they will be the zones which can merge and which cannot. For this, we use a first segmentation by edge detection.

III. OUR ALGORITHM

This type of algorithm is usually applied to a grayscale image.

A. Equations

Number equations consecutively. To make your equations more compact, you may use the solidus (/), the exp function, or appropriate exponents. Italicize Roman symbols for quantities and variables, but not Greek symbols. Use a long dash rather than a hyphen for a minus sign. Punctuate equations with commas or periods when they are part of a sentence, as in:

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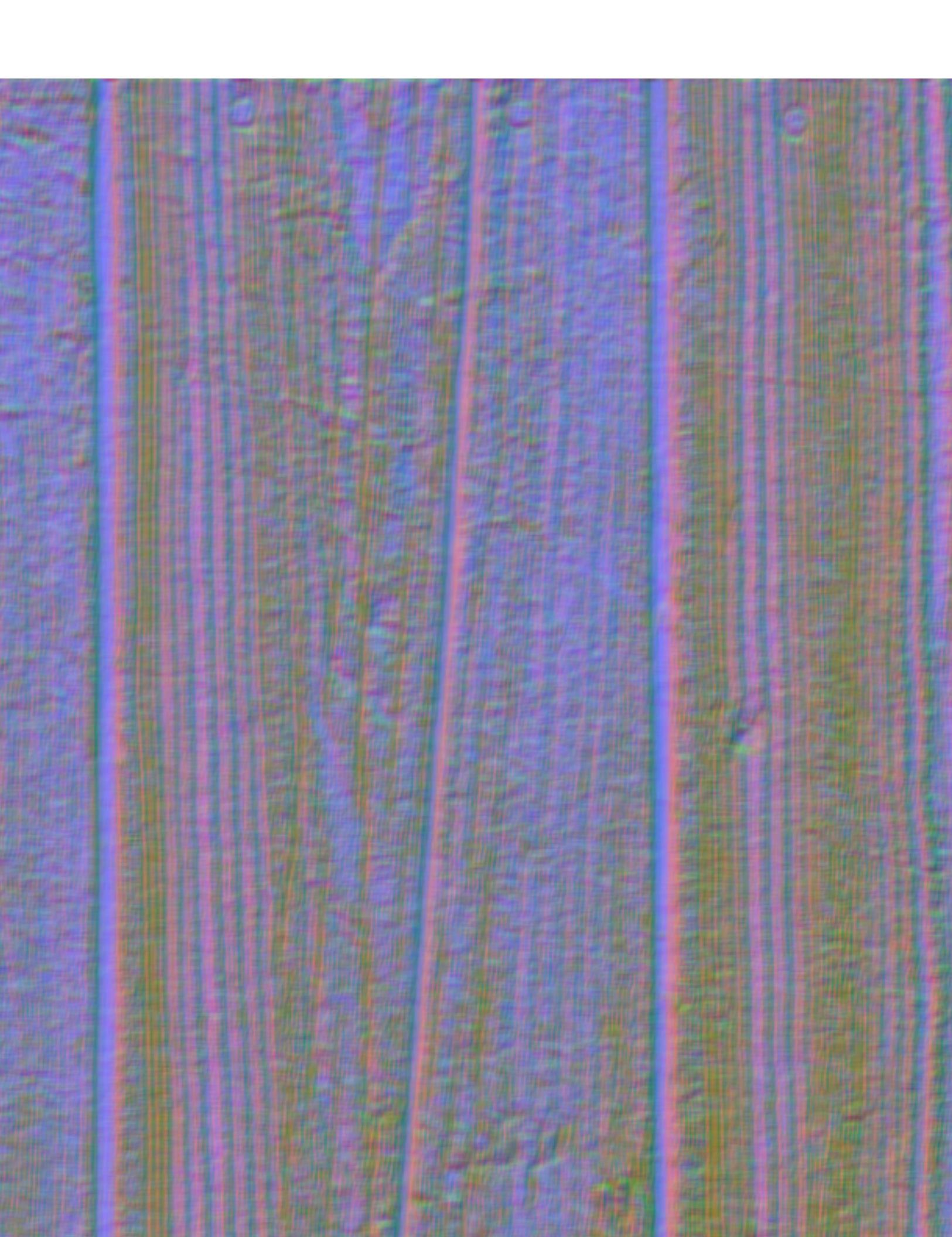
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- The word “data” is plural, not singular.
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- There is no period after the “et” in the Latin abbreviation “et al.”.
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An excellent style manual for science writers is [7].

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