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Comparison of Image Procesing Technique

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● 요 약 ●

This paper contains some simple daily used and research used complex methods, describe their theories and analysis implement results, for deeper comprehension. After that, take an actual application of car license location, elaborate the common algorithm responsibility, and meanwhile take some subtle new attempts for algorithm development.

키워드: actual application, complex method, car license location

I. Introduction

Image processing is an active area of research in such diverse fields as medicine, astronomy, microscopy, seismology, defense, industrial quality control, and the publication and entertainment industries. The concept of an image has expanded to include three dimensional data sets, and even four dimensional volume time data sets. An example of the latter is a volume image of a beating heart, obtainable with x-ray computed tomography. CT, PET, single-photon emission on computed tomography, MRI, ultrasound, SAR, Confocal microscopy, scanning tunneling microscopy, atomic force microscopy, and other modalities have been developed to provide digitized images directly. Digital images are widely available from the Internet, CD-ROM, and inexpensive charge-coupled-device (CCD) camera, scanner, and frame grabber. Software for manipulating images is also widely available.

In summary, the image processing has already infiltrated into our lives everywhere, getting the ropes become a maneuver for impelling further research exactly. So it is necessary for study the image processing and benefit in the end.

II. Common Techniques

(1) Gaussian smoothing[1]

The image smoothing is a kind of the image enhancement method, it average the gray value of the image neighbor domain by convolution, in order to reduce the noise effect and decay the contrast. The Gaussian smoothing is the favorite one out of them.

(2) Laplace sharpening[2]

In contrast to the Gaussian smoothing who can eliminate the noise points and reduce the contrast, the Laplace sharpening can enhance the outline and details to make the image clear.

(3) Image contrast effect

In brief, the idea of contrast effect is just use every pixel's opposite gray value in stead of the original one.

(4) Image black and white effect

From arctic aspect, the black and white image is full of nostalgic feelings, and tracing you back to the mesmerizing reminiscent of old school.

(5) Image fog effect

The fog effect import random mechanism for pixel processing.

(6) Image bright and dark effect

Image bright and dark effect is the fastest, simplest, and the most representative method depending on the pixel point directly.

(7) Image median filter

The median filter is a non-linear digital filtering technique,

often used to remove noise from image or other signals, especially treat speckle noise or salt and pepper noise.

(8) Canny edge detection

The definition of edge is the boundary between an object and the background, and indicates the boundary between overlapping objects. This means if the edges in an image can be identified accurately, all of the objects can be located and basic properties can be measured further. And edge detection is a tool in image processing aim at identifying points in a digital image at which the image brightness changes sharply or more formally has discontinuities [3]. So the Canny edge detection is the approach can delineate the main contours of image.

III. Experimental Results

Use the following image for experimentation

Fig. 1 The source image and The soft effect

Fig.2. The sharp effect and The fog effect

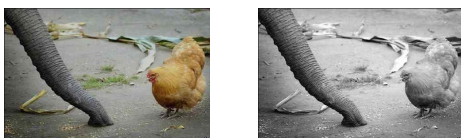Fig.3 The contrast effect and The bright effect

Fig.4 The dark effect and The black and white effect

Fig.5 The median filter effect and The Canny effect

그림 1. (4, 3) LDPC 코드의 Tanner 그래프

IV. 결론

we can draw some conclusions as following:

Many algorithms stand on the opposite sides, can get the different effect, but can't exist together.

Majority time, when we want to get a kind of result, but take compensate for some others.

From different aspects, such as cluster or boundary, single point or with its neighbor, all can get the particular result. But that doesn't mean they can cooperation well, some times even tackle each other.

The physical mathematical calculation has to choose between the accuracy and timesaving, and always the balance in favor of the former.

참고문헌

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