

8 - 41 Fluorescent Target Screen Image Data Preprocessing

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Fluorescent target screen image data can be used as a data source for GAN (Generative Adversarial Network) training. The more data we provide, the higher training success rate we obtain. OpenCV which can run on Linux, Windows, Android and Mac OS operating systems is a cross-platform computer vision and machine learning software library released under the Apache 2.0 license (open source)^[1]. We use OpenCV to preprocess the original images (Fig.1). First resize the image to 600×500 , which can facilitate subsequent processing. Then we can increase or decrease the brightness of the image, add Gaussian noise, impulse noise, Poisson noise and speckle noise to obtain new image data. If we perform an affine transformation on the original image data then additional data is obtained through the above transformation.

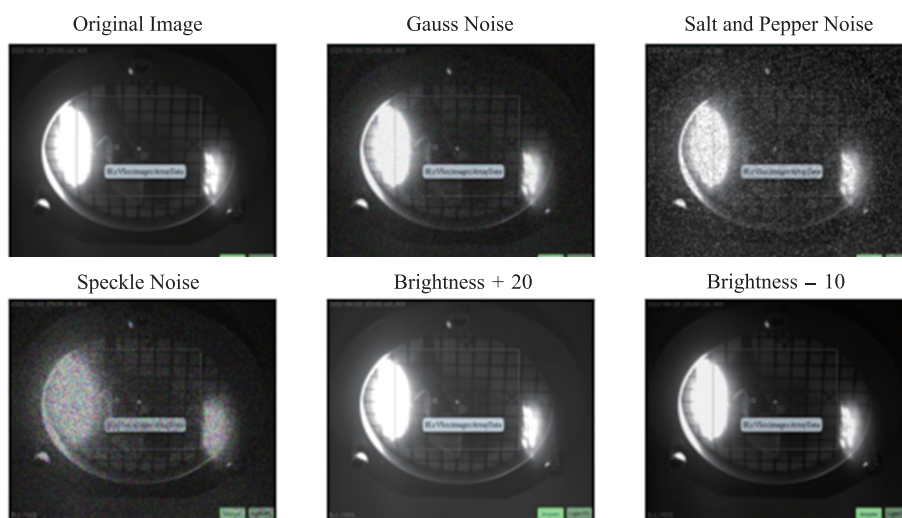


Fig. 1 (color online) Image with Different Processing.

There are 56 original beam images, and more than 5 000 pictures can be obtained after processing, and images without beam can also be processed according to this method. In the future, the processed image data can be used as a data source for the two-classification model of GAN, images with and without beams are labeled differently. In the case of insufficient data sources, we can expand the data to the required amount through this preprocessing method. If more data is needed, we only need to add a combination of different processing methods.

Reference

- [1] <https://opencv.org/about/>.