CHETTINAD COLLEGE OF ENGINEERING AND TECHNOLOGY, KARUR

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ADDITION OF NOISE TO AN IMAGE

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Objective of method:

The main objective of this method is to give a hands-on to the students on the tools that can be used to implement the Image Processing Algorithms. In this method various noise can be added in the images and that can be displayed. The other goal is to encourage self-learning.

Topic covered through activity:

Image Processing Toolbox of MATLAB and various noised added the images.

Description:

MATLAB is used to implement this learning. In order to implement the algorithms and get the outputs, the students have to start with understanding the basic syntax of MATLAB for images. Here students can be take can images.

For example

In the images students can added the various noises present the environment. Various noises are
 1. Gaussian Noise
  2. Poisson Noise
  3. Salt and Pepper Noise
  4. Speckle Noise

After executing the program, the noise added images displayed in the output. The program and output is shown below.

Program

```
%% Adding Noise to an Image
%% clearing the window
clc;
clear all;
close all;
%% Read the first image
I=imread('C:\Users\prabhakaranm\Desktop\penguin.jpg');
figure;
subplot(2,3,1);
imshow(I);
title('Original Image');
%% Gray Scale Image
I1=rgb2gray(I);
subplot(2,3,2);
imshow(I1);
title('Gray scale Image');
%% Addition of Noise to an image
N1= imnoise(I1,'gaussian');
N2= imnoise(I1,'poisson');
N3= imnoise(I1,'salt & pepper');
N4 = imnoise(I1,'speckle');
subplot(2,3,3);
imshow(N1);
title('Gaussian Noise added Image');
subplot(2,3,4);
imshow(N2);
title('Poisson Noise added Image');
subplot(2,3,5);
imshow(N3);
title('Salt and Pepper Noise added Image');
subplot(2,3,6);
imshow(N4);
title('Speckle Noise added Image');
```

Output:
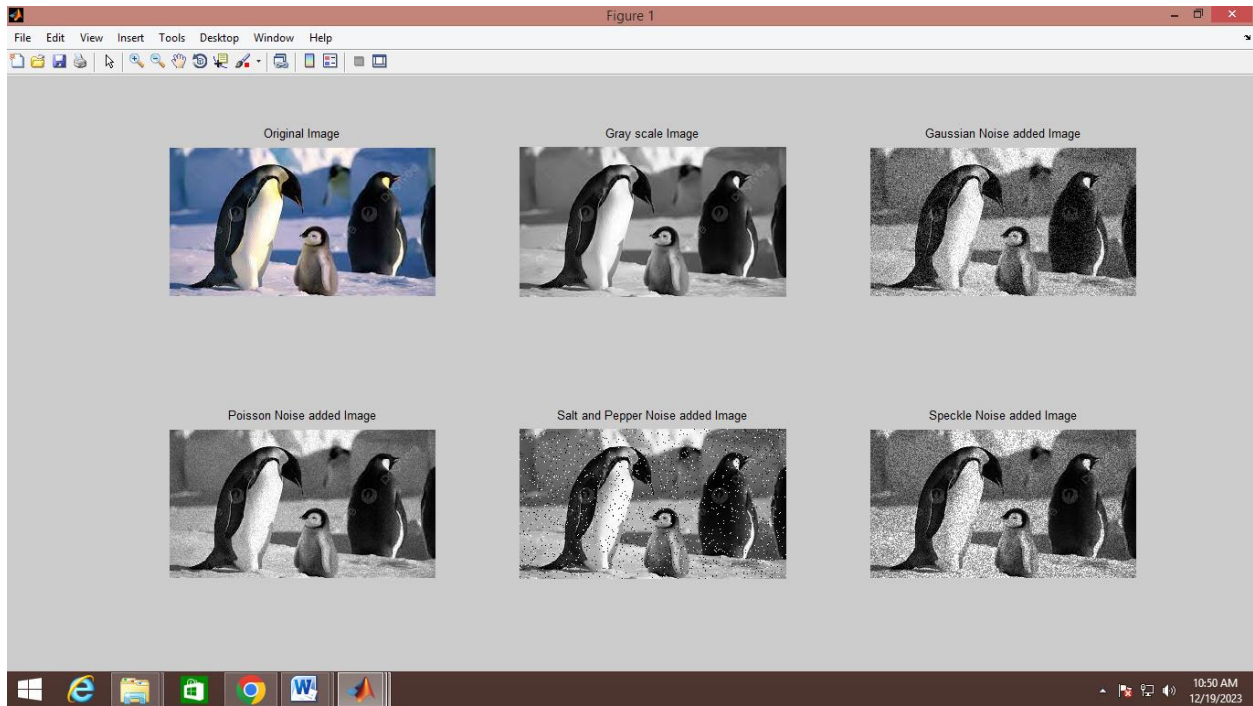
Inference:

This method is a way of bridging the gap between the theoretical knowledge and the coding domain. This also encourages self-learning amongst the student community.