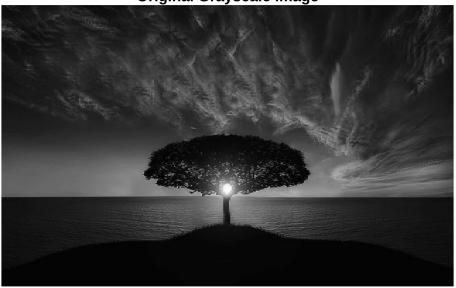
```
% Load the image
img = imread('https://cdn.pixabay.com/photo/2015/04/23/22/00/
tree-736885_640.jpg'); % Replace with your image file
img = rgb2gray(img); % Convert to grayscale
img = im2double(img); % Convert to double precision (0 to 1)

% Display the original image
figure;
imshow(img);
title('Original Grayscale Image');
```





```
function dithered_img = floyd_steinberg_dither(img)
  [rows, cols] = size(img);
  dithered_img = zeros(rows, cols);

for i = 1:rows
  for j = 1:cols
    old_pixel = img(i, j);
    new_pixel = round(old_pixel); % Threshold to 0 or 1
    dithered_img(i, j) = new_pixel; % Store new pixel

    % Calculate the error
    error = old_pixel - new_pixel;

  % Spread the error to neighboring pixels
```

```
if j + 1 <= cols</pre>
                img(i, j + 1) = img(i, j + 1) + error * (7 / 16);
            end
            if i + 1 <= rows</pre>
                img(i + 1, j) = img(i + 1, j) + error * (5 / 16);
                if j - 1 >= 1
                     img(i + 1, j - 1) = img(i + 1, j - 1) + error * (3 / 16);
                end
                if j + 1 <= cols</pre>
                     img(i + 1, j + 1) = img(i + 1, j + 1) + error * (1 / 16);
                end
            end
        end
    end
end
function dithered_img = jarvis_judice_ninke_dither(img)
    [rows, cols] = size(img);
    dithered_img = zeros(rows, cols);
    for i = 1:rows
        for j = 1:cols
            old_pixel = img(i, j);
            new_pixel = round(old_pixel); % Threshold to 0 or 1
            dithered_img(i, j) = new_pixel; % Store new pixel
            % Calculate the error
            error = old_pixel - new_pixel;
            % Spread the error to neighboring pixels
            if j + 1 <= cols
                img(i, j + 1) = img(i, j + 1) + error * (7 / 48);
            end
            if j + 2 <= cols
                img(i, j + 2) = img(i, j + 2) + error * (5 / 48);
            end
            if i + 1 <= rows
                img(i + 1, j) = img(i + 1, j) + error * (5 / 48);
                if j - 1 >= 1
                     img(i + 1, j - 1) = img(i + 1, j - 1) + error * (3 / 48);
                end
                if j <= cols</pre>
                     img(i + 1, j) = img(i + 1, j) + error * (5 / 48);
                end
                if j + 1 <= cols</pre>
                     img(i + 1, j + 1) = img(i + 1, j + 1) + error * (3 / 48);
                end
                if j + 2 <= cols
                     img(i + 1, j + 2) = img(i + 1, j + 2) + error * (1 / 48);
                end
            end
```

Original Grayscale Ima@eyd-Steinberg Ditherings-Judice-Ninke Dithering





