

Ex: No: 10

FUZZY LOGIC

Image Processing

Aim:- To aim of implementing fuzzy logic for edge detection is to enhance the robustness and accuracy of edge detection in image by handling uncertainty in pixel transition.

Procedure: for Fuzzy logic

Step 1:- Step up the Environment.

1) Open MATLAB: Ensure you have access to MATLAB with the image processing toolbox and fuzzy logic toolbox installed.

Step 2:- Import and convert image to Gray Scale

1) Read the RGB Image

2) Convert to Gray Scale

Step 3:- Convert image to double-precision data.

1. Convert to double.

Step 4:- obtain image gradient.

1. Define Gradient filters:

2. Calculate ~~Gradients~~ Gradients.

3. Plot image gradients.

Step 5: Define fuzzy inference system (FIS) for edge detection.

- 1) Create FIS
- 2) Add input
- 3) Define Membership function for input.
- 4) Add output
- 5) Define Membership function for o/p
- 6) Plot Membership function.

Step 6: Specify FIS rules.

- 1) Add rules for FIS

Step 7: Evaluate edge FIS.

- 1) Evaluate edge ~~function~~ detection.

Step 8: Plot result.

- 1) Plot original Gray scale Image
- 2) Plot detected edge

Result:

Thus the program was successfully executed and the G/P is verified.