EECS101 Discussion 3

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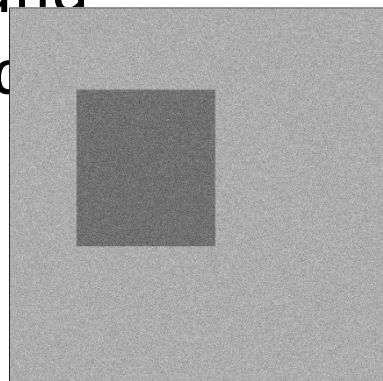
Binary Image

- Choose a threshold that best separates the object from the background
- Display histogram (brightness level: [0,255])
  - Irfanview: Image->Histogram
  - Unix: %histogram image
    - histogram is provided on the course website
  - Or any other tools
- Binary image in hw3
  - Note the object is darker than the background
  - 255 for the object and 0 for the background



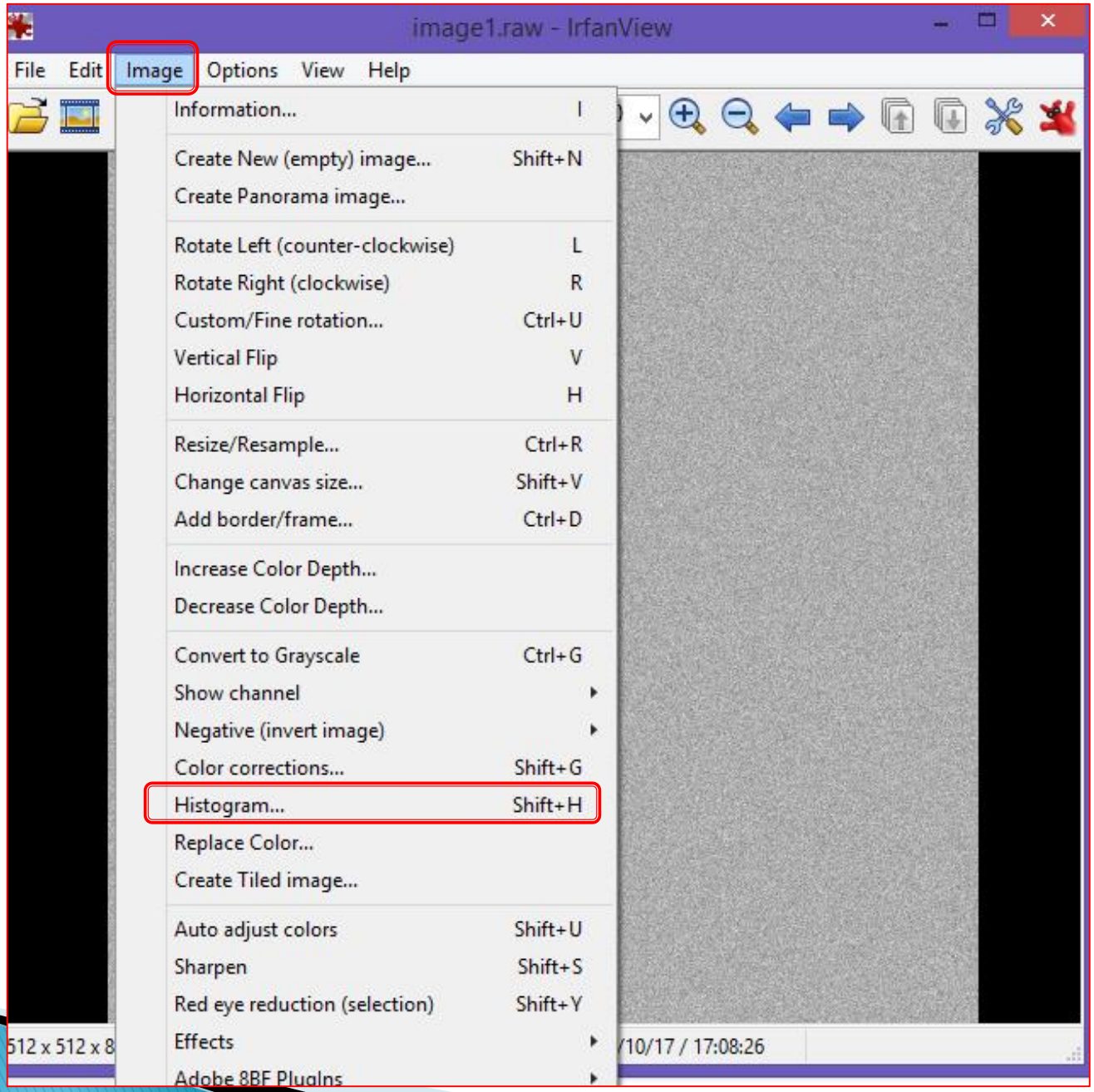


image1.raw - IrfanView
File
Edit
Image
Options
View
Help
Information... I
Create New (empty) image... Shift+N
Create Panorama image...
Rotate Left (counter-clockwise) L
Rotate Right (clockwise) R
Custom/Fine rotation... Ctrl+U
Vertical Flip V
Horizontal Flip H
Resize/Resample... Ctrl+R
Change canvas size... Shift+V
Add border/frame... Ctrl+D
Increase Color Depth...
Decrease Color Depth...
Convert to Grayscale Ctrl+G
Show channel
Negative (invert image)
Color corrections... Shift+G
Histogram... Shift+H
Replace Color...
Create Tiled image...
Auto adjust colors Shift+U
Sharpen Shift+S
Red eye reduction (selection) Shift+Y
Effects
Adobe 8BF PlugIns
512 x 512 x 8
/10/17 / 17:08:26

Area and Center

- Area
  - $A = \sum_x \sum_y b(x, y)$
  - $b(x, y)$ has value 0 (background) or 1 (object)
- Center
  - $x_0 = [\frac{\sum_x \sum_y xb(x,y)}{A}]$
  - $y_0 = [\frac{\sum_x \sum_y yb(x,y)}{A}]$
- Indicate the center using a 5x5 patch of value 128

8 Connected Component

- For each of the pixels in the binary image, check if any of its 8（or 4） neighbors has value 1. If so, how to label it? If not, how to label it?

- The pseudo code should show the algorithm step by step. It should have the correct data structure, control block and correct indentation that your grader could understand

- Write your pseudo code on paper, not in your c-file.

Submission Guideline

- Demonstrate your program during next lab or office hours. No later than 3pm, Feb 3, in lab.
- Submit your program and written answers to EEE by Feb 3 midnight
- Written answers:
  - input images(optional),
  - binary images (black and white) with the object center (gray),
  - thresholds,
  - area and center coordinates, respectively.

  and the pseudo code in the end.

Grading Criteria

- Total 100 points
  - 5 points for submitting a program
  - 15 points for demonstrating your program
  - 60 points for the three images
    - 10 for generating a binary image and marking the center
    - 5 for computing the area
    - 5 for computing the center
  - 20 points for the pseudo code problem
    - Partial Credit will be allowed