Automatic Threshold Selection Methods **C++**

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Algorithm Steps:

- Step 0: inFile1, inFile2, outFile1, deBugFile <- open via argv []
- Step 1: numRows, numCols, minVal, maxVal <- read from inFile1.
- x1, y1, x2, y2 <- read from inFile2.
- histAry <- dynamically allocate (size of maxVal + 1) and initialized to zero.
- maxHeight <- loadHist (histAry, inFile) // loadHist ( ) returns the largest value of histogram.
- dynamically allocate all other arrays and initialized to zero.
- Step 2: dispHist (...)
- Step 3: deepestThrVal <- deepestConcavity (x1, y1, x2, y2, histAry, deBugFile)
- outFile1 <- output DeepestThrVal to outFile with caption.
- Step 4: BiGaussThrVal <- biGaussian (histAry, GaussAry, maxHeight, minVal, maxVal, deBugFile)
- outFile1 <- output BiGaussThrVal with caption
- Step 5: close all files

Output for set 1:

64 64 0 63

0 (10):++++++++++

1 (14):++++++++++++++

2 (17):+++++++++++++++++

3 (20):++++++++++++++++++++

4 (22):++++++++++++++++++++++

5 (31):+++++++++++++++++++++++++++++++

6 (28):++++++++++++++++++++++++++++

7 (33):+++++++++++++++++++++++++++++++++

8 (45):+++

9 (56):++

10 (70):++

11 (90):++

12 (120):++

13 (150):++

14 (192):++

15 (210):++

16 (192):++

17 (172):++

18 (132):++

19 (100):++

20 (89):+++

21 (78):++

22 (42):++

23 (20):++++++++++++++++++++

24 (18):++++++++++++++++++

25 (10):++++++++++

26 (9):+++++++++

27 (8):++++++++

28 (8):++++++++

29 (7):+++++++

30 (6):++++++

31 (5):+++++

32 (4):++++

33 (4):++++

34 (6):++++++

35 (8):++++++++

36 (10):++++++++++

37 (12):++++++++++++

38 (22):++++++++++++++++++++++

39 (26):++++++++++++++++++++++++++

40 (40):++

41 (45):+++

42 (72):++

43 (80):++

44 (90):++

45 (100):++

46 (120):++

47 (150):++

48 (188):++

49 (190):++

50 (170):++

51 (140):++

52 (120):++

53 (110):++

54 (90):++

55 (80):++

56 (70):++

57 (60):++

58 (30):++++++++++++++++++++++++++++++

59 (20):++++++++++++++++++++

60 (12):++++++++++++

61 (9):+++++++++

62 (8):++++++++

63 (6):++++++

The two peak points: (15,210) and (49,190)

The deepest concavity auto-selected threshold value is 32

The BiGaussian auto-selected threshold value is 32

Output for set 2:

64 64 1 60

1 (1):+

2 (3):+++

3 (5):+++++

4 (4):++++

5 (5):+++++

6 (7):+++++++

7 (4):++++

8 (6):++++++

9 (10):++++++++++

10 (12):++++++++++++

11 (15):+++++++++++++++

12 (10):++++++++++

13 (14):++++++++++++++

14 (15):+++++++++++++++

15 (22):++++++++++++++++++++++

16 (20):++++++++++++++++++++

17 (18):++++++++++++++++++

18 (28):++++++++++++++++++++++++++++

19 (38):++++++++++++++++++++++++++++++++++++++

20 (44):++

21 (56):++

22 (70):++

23 (90):++

24 (120):++

25 (150):++

26 (190):++

27 (214):++

28 (190):++

29 (172):++

30 (132):++

31 (100):++

32 (89):+++

33 (78):++

34 (72):++

35 (80):++

36 (90):++

37 (100):++

38 (120):++

39 (165):+++

40 (186):++

41 (195):+++

42 (185):+++

43 (170):++

44 (165):+++

45 (120):++

46 (90):++

47 (80):++

48 (70):++

49 (60):++

50 (54):++

51 (35):++++++++++++++++++++++++++++++++++

52 (31):+++++++++++++++++++++++++++++++

53 (21):+++++++++++++++++++

54 (19):+++++++++++++++++

55 (12):++++++++++++

56 (10):++++++++++

57 (9):+++++++++

58 (11):++++++++++

59 (8):++++++++

60 (6):++++++

The two peak points: (27,214) and (41,195)

The deepest concavity auto-selected threshold value is 34

The BiGaussian auto-selected threshold value is 34