

HW 2 (100 points total, due 09:10, 11/1/21)

Problem 1 (30 points)

Assume histogram equalization can be carried out without round-off errors. Prove that a second pass of histogram equalization on the result of the first pass of histogram equalization would produce the same result.

Problem 2 (35 points)

Write a C or C++ code to implement shading correction using lowpass filtering. A copy of the test image is provided on the course website.

- (a) Verify the result shown in Fig. 3.42 and try to obtain a better shading pattern.
- (b) Identify what makes the bottom right corner dark in Fig. 3.42(b).

You should submit your code along with your result. A thorough description of your method is required. The grading will be based on the quality of your result.

Problem 3 (35 points)

Apply the techniques you have learned from Chapter 3 to enhance the contrast of the Einstein image (also provided on the course website). There is no standard answer. The score will be based on the quality of your final result. Submit your code along with your result and provide a detailed description of the algorithm you have designed.