

Пороговые и адаптивные пороговые преобразования

After considerable delay
entered into plea bargain
bargain agreement under w
of kidnaping and wanton en
wounding and domestic batt
After the parties entered



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$$I := \begin{cases} 1 & I > T \\ 0 & I \leq T \end{cases}$$

Sonnet for Lena

O dear Lena, your beauty is so vast
It is hard sometimes to describe it fast.
I thought the entire world I would impress
If only your portrait I could compress.
Alas! First when I tried to use VQ
I found that your cheeks belong to only you.
Your silky hair contains a thousand lines
Hard to match with sums of discrete cosines.
And for your lips, sensual and tactual
Thirteen Crays found not the proper fractal.
And while these setbacks are all quite severe
I might have fixed them with hacks here or there
But when filters took sparkle from your eyes
I said, 'Damn all this. I'll just digitize.'

Thomas Colthurst



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Задача 3. Реализовать адаптивное пороговое преобразование для скана/фото текста неравномерной яркости

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Коррекция яркости и контраста. Линейная и гамма-коррекция

$$g(i, j) = \alpha \cdot f(i, j) + \beta$$



$$O = \left(\frac{I}{255} \right)^\gamma \times 255$$

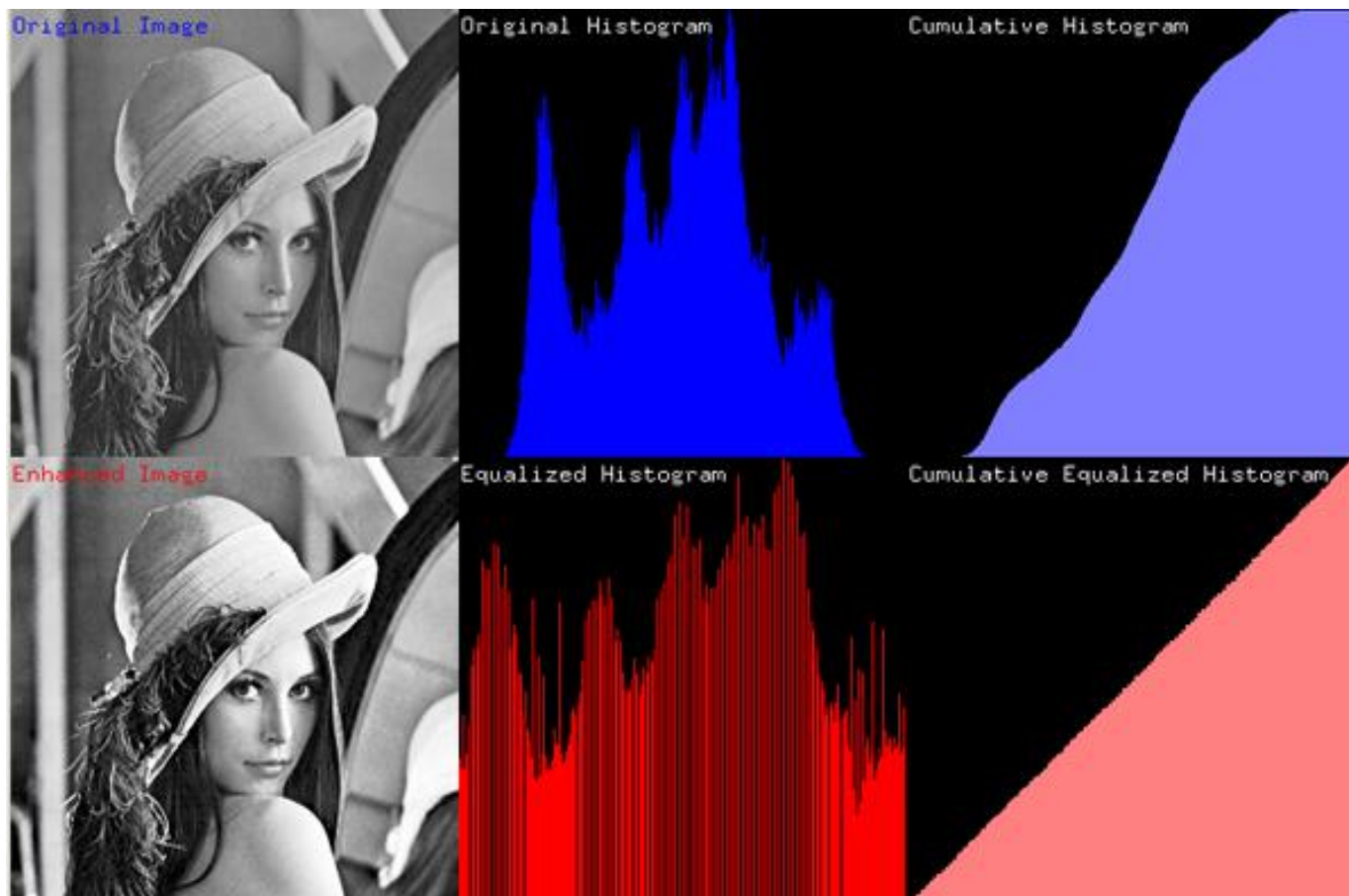


Гистограмма изображения, эквализация гистограммы

Гистограмма – это график распределения тонов на изображении.

X - шкала яркостей тонов от белого до черного, Y – число пикселей заданной яркости

Эквализация – метод улучшения визуального качества изображения



Задача 4. Работа с гистограммой изображения. Визуализация гистограммы изображения. Реализовать методы ручной коррекции яркости и контраста, гамма коррекцию, а также автоматическую коррекцию на основе метода эквализации гистограммы.

- a) Ручная коррекция: α и β задаются пользователем
- b) Гамма коррекция. Результаты для $\gamma > 1$ и $\gamma < 1$
- c) Отрисовка гистограммы изображения с диска
- e). Эквализация гистограммы: `cv::equalizeHist`

Задача 5. Продемонстрировать восстановление исходного изображения по набору зашумленных изображений (уровень равномерного аддитивного шума задает пользователь), определить, какое количество изображений требуется для получения изображения приемлемого качества.



>>>



N зашумленных изображений