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Suggestion for the gamma problem

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28.4.2017

Presenting out of range values

The problem incurs when we are trying to view values that are in a range between zero and one, because HDR images may also have negative values or values that are greater than one. These out of range values won't be seen in the histogram because the scope to view the data is too narrow in this context.

It might be possible to view all of the data if the X-axis of the histogram would present the image's data in **percentages**. Regardless of the values that would normally be out of range, now the lowest value would be the starting point of the axis and the highest value the ending point. These numbers could also be shown below the histogram. It might also help the user to identify the point between negative and positive values that could be shown with some kind of mark, for example with a coloured cross line through the histogram. This helps understanding the distribution of values within the image.

Presenting different scalings

Both the linear and the perceptually uniform views have upsides and downsides. Linear view shows the image's range of data as a whole but the data may seem far apart, which can make interpreting it extremely difficult. Perceptually uniform view makes the data look balanced and easier to read but it can also mislead the user because the of the histogram and the bars might seem too squished to tell about the actual distribution of values accurately.

Both views are important in their own ways because they present data differently and having them both available can give the users a better chance of understanding the data and using it to their own needs. After all both ways have the same pixel values, so it doesn't hurt to give another point of view. In the user interface there should be an option to switch between different views. It is also important to separate the options from each other with proper titles to avoid confusion. Using only icons or symbols in switching is problematic because it is impossible to tell what they mean only by looking at them. This is because the icons and symbols are most likely way too small and they don't relate to the specific context in any way.

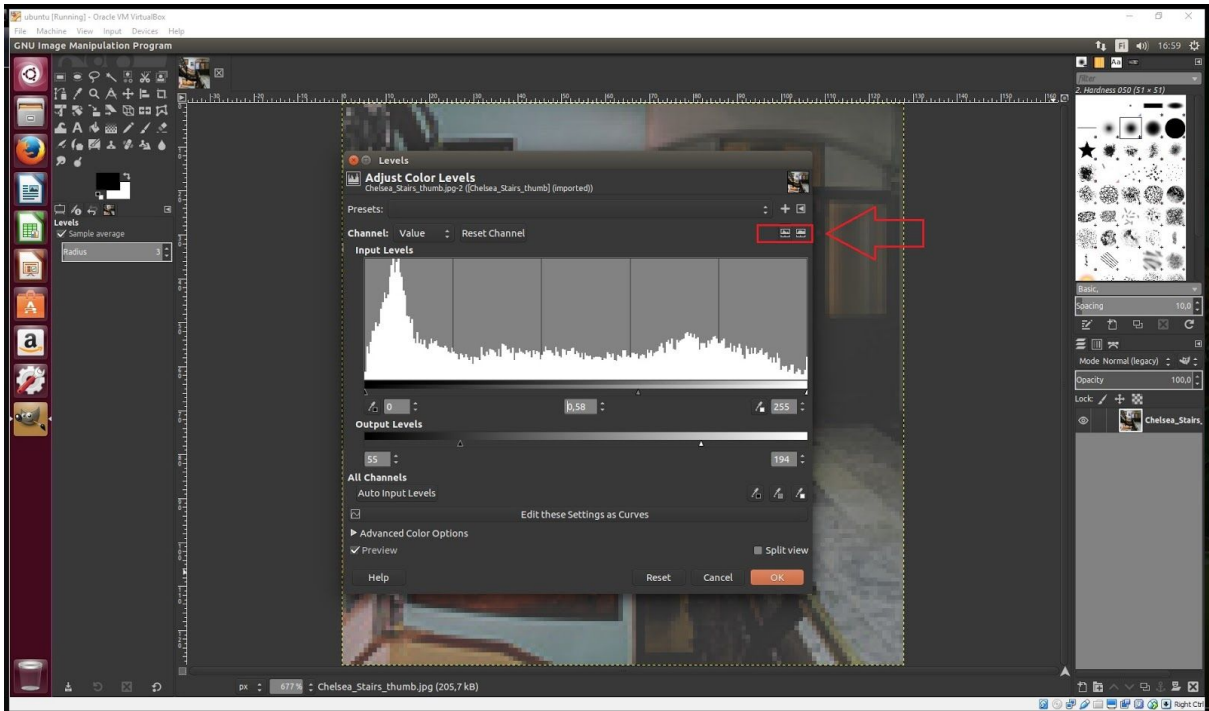


Figure 1. An example of a misleading use of icons between views.

Figure 1 shows a highlighted example of using icons which confuses the user. There is no title or description for the view so the user has no idea what is being used at the moment. The user should always have an understanding and control over the current situation.

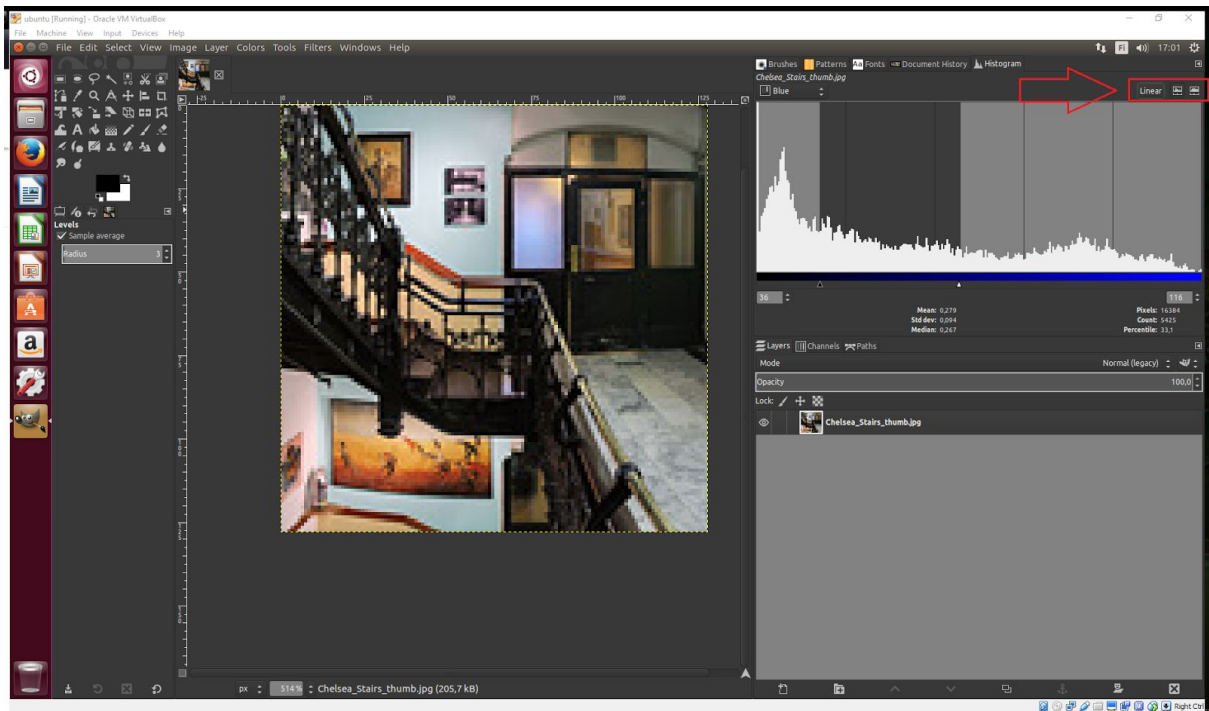


Figure 2. An example of using icons and titles correctly together.

Figure 2 shows a highlighted example of using the icons with titles. When switching between views, the title should also change accordingly. This way the user understands what is going on and has a far better chance of facing no errors and misunderstandings the situation.

Considering the HDR mode and scaling, it might be better not to present the scaling for the user at all. HDR mode has the ability to show the values that would otherwise be out of range, so scaling either way doesn't bring any benefits to the table in that manner.

Interacting with the widgets

The lack of scaling (in HDR) can possibly make the user interface a bit more simple which can improve the overall usability. A good goal is to have all the necessary functions available in a form that is as simple as possible. Using percentages as discussed before makes the otherwise out of range data visible and therefore more available for altering. A visually relatively accurate histogram is a good baseline to make adjustments, because then the user sees the data in a more truthful way and is also more likely to have better interaction with the widgets.

