Master 1 IMAGINE Projet Image

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1 Research to convolutional neuronal Networks

This week we did some research regarding convolutional neuronal networks that recolor images in a given color scheme. We found some papers that are very interesting. The most fitting to our purposes might be The paper 'PaletteNet: Image Recolorization with Given Color Palette' by Junho Cho et al. (`https://openaccess.thecvf.com/content_cvpr_2017_workshops/w12/papers/Cho_PaletteNet_Image_Recolorization_CVPR_2017_paper.pdf`). The paper describes a neuronal network that takes a color scheme and an image as an input and outputs the image with the colors changed to the color scheme. We tried to find implementations of this method online, as it is quite complicated and needs a huge database of images for training. We found an implementation by Yong Zheng-Xin on Github (`https://github.com/yongzx/PaletteNet-PyTorch/tree/master`) but did not yet menage to run it. We will try again next week.

2 Color Scheme Selection Refactor

One interesting thing in the paper mentioned in section 1 is, that the method does not only change the hue of the pixels, as we do, but also the saturation. This seems to have a huge impact on how accurate the color palette is represented in the image. So this week we started to implement the same thing in our current method. A `ColorScheme` now does not contain a list of hues but a list of colors, represented by a hue and a saturation. The the `ColorMapper` is therefore able to also use the saturation of a given color in the `ColorScheme`.

The problem is, that our current UI does support different saturations for every color. So we started to implement a new UI where the user can change the saturation of a color as well as the hue. As it can be seen in image 1, the colorscheme now gets show directly on the screen as well as all the hues of the colors. The hue of a color can be changed by the slider on the bottom. The saturation can be changed by the slider on the right (see image 2). By clicking on the buttons in the top row one does not onyl change the color scheme that is currentyl selected, but also how many colors are in the color scheme. We also added a new mode for manual color schemes (see image 2).

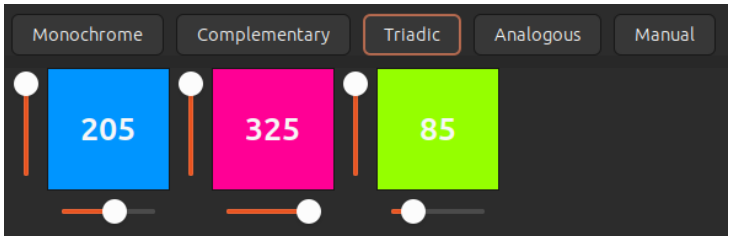

Figure 1: The new Color Scheme selection UI with a triadic ColorScheme

This new UI is not yet finished. For example one can still change the hues of every color, even if a specific color scheme is selected. In the future we want to disable the hue slider for every color except the first one, if a specific color scheme is selected. Also the color schemes do not update automatically when the first color changes. One has to press the color scheme button again to change it. The UI is also not yet connected to the rest of the program, so images can not be manipulated with this UI yet.

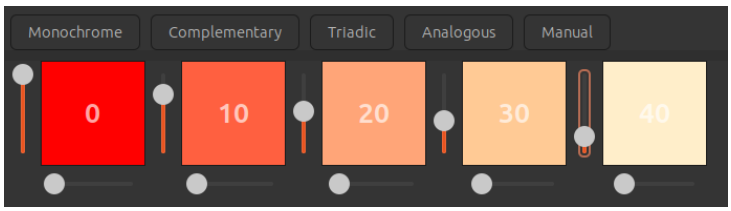

Figure 2: Different saturations can be set by the slider on the left