

ColorMapND: A Data-Driven Approach and Tool for Mapping Multivariate Data to Color

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Supplement Material

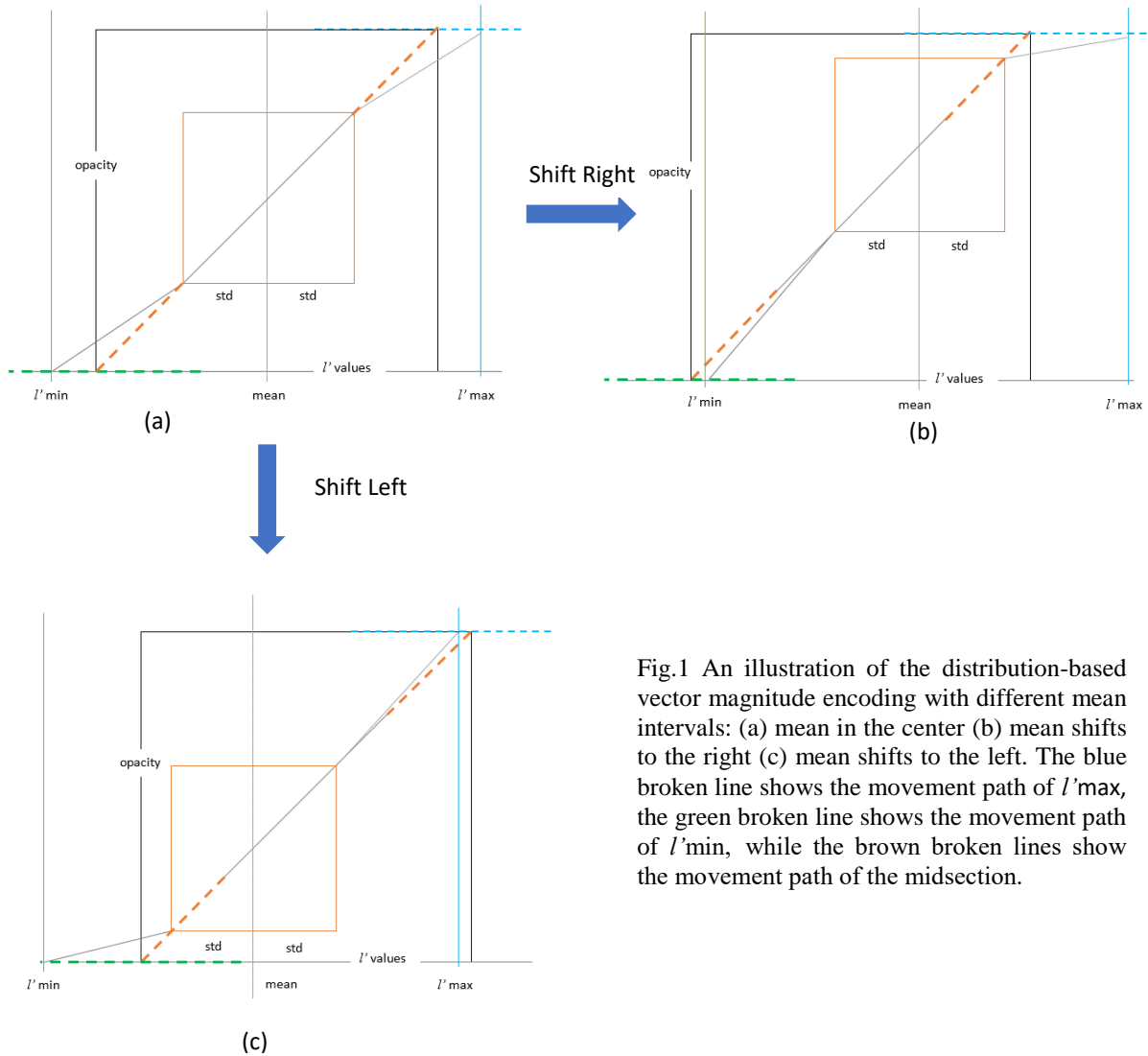


Fig.1 An illustration of the distribution-based vector magnitude encoding with different mean intervals: (a) mean in the center (b) mean shifts to the right (c) mean shifts to the left. The blue broken line shows the movement path of l' max, the green broken line shows the movement path of l' min, while the brown broken lines show the movement path of the midsection.

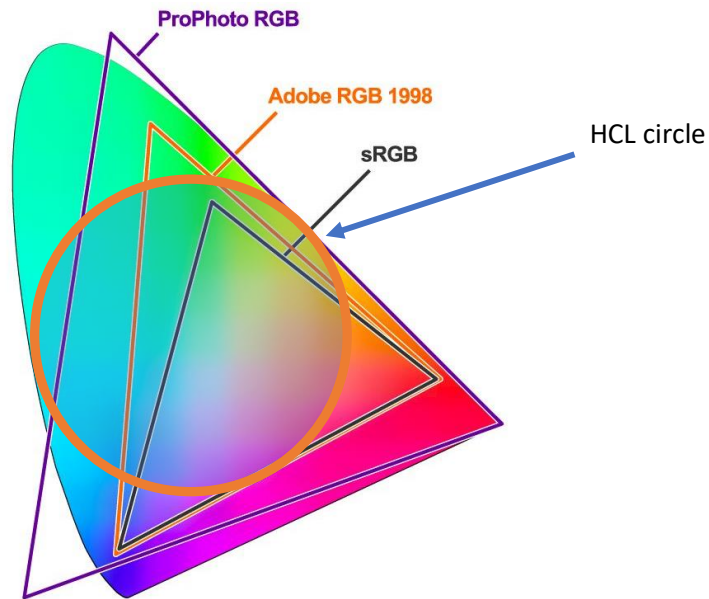


Fig.2. Various color spaces inserted into the CIE LUV color space: sRGB, AdobeRGB, ProPhotoRGB, and our HCL color space when $L=70$. Commercial monitors use the sRGB space for the most part. The conclusion section of the paper discusses the relationship of our expandable HCL color space and the displayable sRGB color space

At first glance, the sRGB space seems quite limited in terms of its ability in displaying the colors. But the limitations are not as grave as they appear to be. The sRGB gamut covers the full range of hues, such as “red”, “orange”, “yellow”, “green”, but only falls short in terms of covering the full saturation of these colors. In nature, highly saturated colors are quite rare, so that they appear unnatural to the human visual system. And so, pictures produced using the sRGB gamut are generally acceptable. However, there are some common colors that cannot be reproduced by a sRGB device. For instance, the pure red or green of a laser pointer, many of the bright "fluorescent" colors, etc., cannot be accurately produced by such a display. In visualization we could use these for highlighting of important regions, but our paper is not about this topic, and also, we could find less populated displayable color space regions for this.