HierarchicalPalette − Colour Editing in Intricate Visual Representations for Fashion

Qichen Xie[1], Yanghong Zhou[1,2], N.M. Cheung[1], P.Y. Mok[1,2,*]

[1] School of Fashion and Textiles, The Hong Kong Polytechnic University, Hong Kong
[2] Research Centre of Textiles for Future Fashion, The Hong Kong Polytechnic University, Hong Kong

Abstract:

In the realm of fashion, it is commonly known that an individual's overall appearance is intricately influenced by the interplay between their attire designs, skin tones, and the surrounding environment. Extensive research endeavours have been undertaken for the colour editing of images, which often includes one essential process of palette extraction. However, prior work only focused on the palette extraction from the entire image, thereby neglecting the specific need of image colour editing, namely selectively recolouring specific regions within the image. Furthermore, it remains challenging to maintain a sparse colour palette while assigning accurate weights to specific palette colours. In this paper, we propose a novel method called HierarchicalPalette, which enables the recolouring of user-specified regions using hierarchy palettes. More specifically, we employ an automatic segmentation method to first segment the images into regions with varied semantics or colour themes. Next, a hue-chroma palette extraction model is applied to each region, enabling sparse and precise control over the colours of individual regions. The use of HierarchicalPalette helps mitigate the influence of environmental factors when modifying the clothing colour in complex images. Both qualitative and quantitative assessments are performed and the results show that our method outperforms other state-of-the-art methods, and it provide a more intuitive tool for designers to recolour fashion images.

Keywords:

Artificial Intelligence (AI), Image Recolouring, Palette-based Editing, Image Segmentation