ABSTRACT

This paper presents an approach for Image Cartoonization.

By observing the cartoon painting behavior and consulting artists, we propose to separately identify three white-box representations from images:

1. Surface Representation that contains a smooth surface of cartoon images
2. Structure Representation that refers to the sparse color-blocks and flatten global content in the celluloid style workflow,
3. Texture Representation that reflects High Frequency

The learning objectives of our method are separately based on each extracted representations, making our framework controllable and adjustable.

This enables our approach to meet artists’ requirements in different styles and diverse use cases.

Qualitative comparisons and quantitative analyses, as well as user studies, have been conducted to validate the effectiveness of this approach, and our method outperforms previous methods in all comparisons.

Finally, the ablation study demonstrates the influence of each component in our framework.

CH-1 INTRODUCTION

1.1 – MOTIVATION

1.2 – OBJECTIVE

1.3 – ORGANISATION OF PROJECT

CH-2 BACKGROUND

2.1

2.2

2.3

CH-3 INTRODUCTION

CH-4 INTRODUCTION

CH-5 INTRODUCTION

CH-6 INTRODUCTION

CH-7 REAL LIFE IMPLEMENTATION

CH-8 CONCLUSION

8.1 – CONCLUSION

In this paper, we propose a white-box controllable image cartoonization framework based on GAN, which can generate high-quality cartoonized images from real-world photos.

Images are decomposed into three cartoon representations:

the surface representation, the structure representation, and the texture representation.

Corresponding image processing modules are used to extract three representations for network training, and output styles could be controlled by adjusting the weight of each representation in the loss function.

Extensive quantitative and qualitative experiments, as well as user studies, have been conducted to validate the performance of our method. Ablation studies are also conducted to demonstrate the influence of each representation.

8.2 – FUTURE PROSPECTS

<https://towardsdatascience.com/avatargan-generate-cartoon-images-using-gan-1ffe7d33cfbb>

Application of GAN

BIBILOGRAPHY

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