Multi-Stylization of Video-Games in Real-Time Guided by G-Buffer Information

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Problem
Render video-games in a given style.
The style is represented by one or more images.

Our Approach
Pre-Trained Network for Stylization

Interpolation of the neural network’s stylized activation volumes

Exploit G-Buffer information to give the artist more control on the stylization.
Challenges: real-time, temporal coherence

Motivation - Previous Work
• Arbitrary style transfer [Ghiasi et al. 2017]
• Training the CNN with temporal coherence [Huang et al. 2017]
• A meaningful representation of the style [Kulla et al. 2003]
• To draw a scene, artists exploit its luminance. [Fiser et al. 2016]
• Segmentation and interpolation of styles to stylize images [Kozlovtev et al. 2019] [Zhang et al. 2019] [Li et al. 2017]

Style Guidance
Depth
Normals
Luminance

Result

Future Work
• Interpolation in a multidimensional space including luminance, depth, normals and the id of the scene's objects.
• Train a network with the interpolated styles.