



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.



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

[Kozlovtssev et al. 2019]

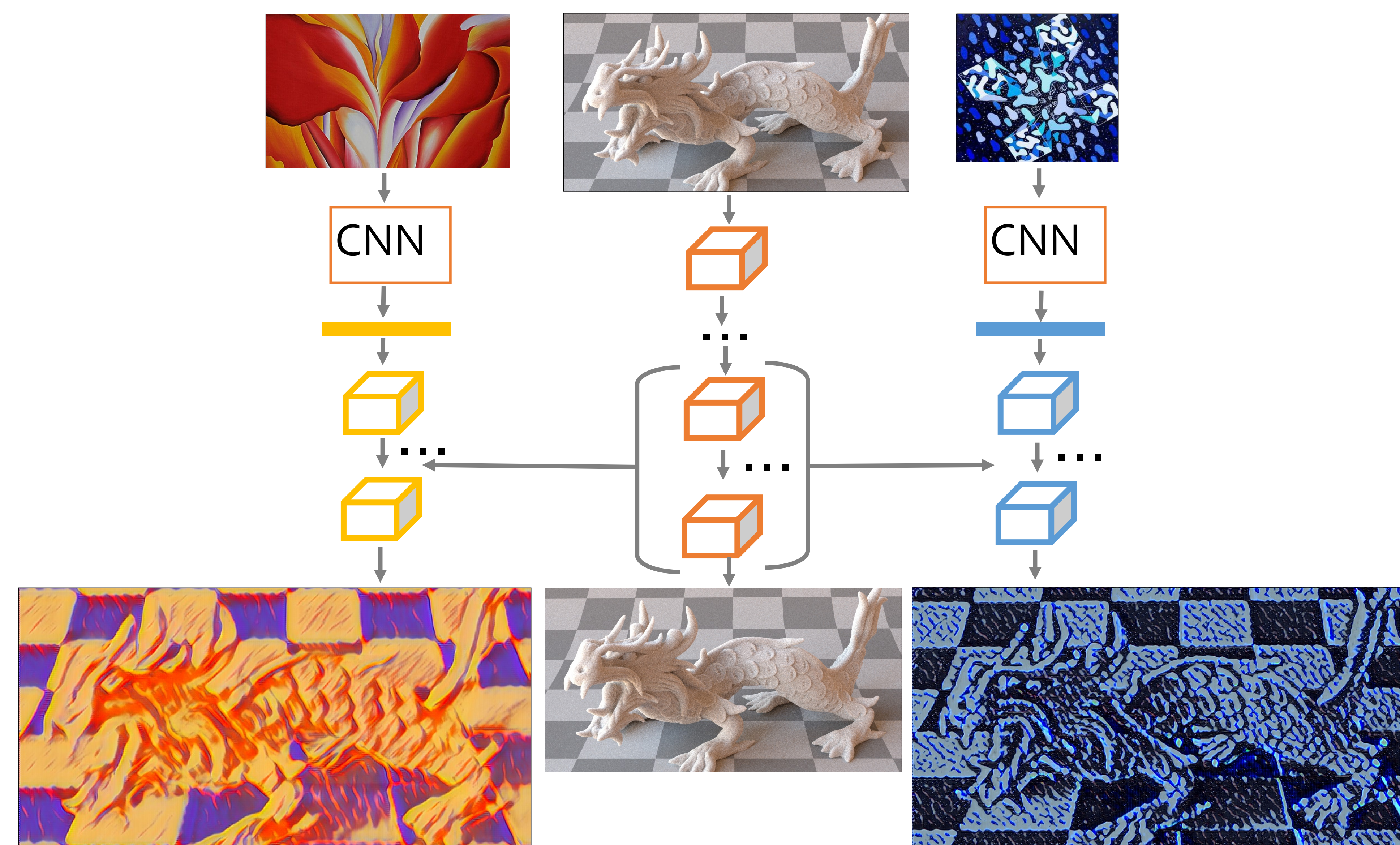
[Zhang et al. 2019]

[Li at al. 2017]

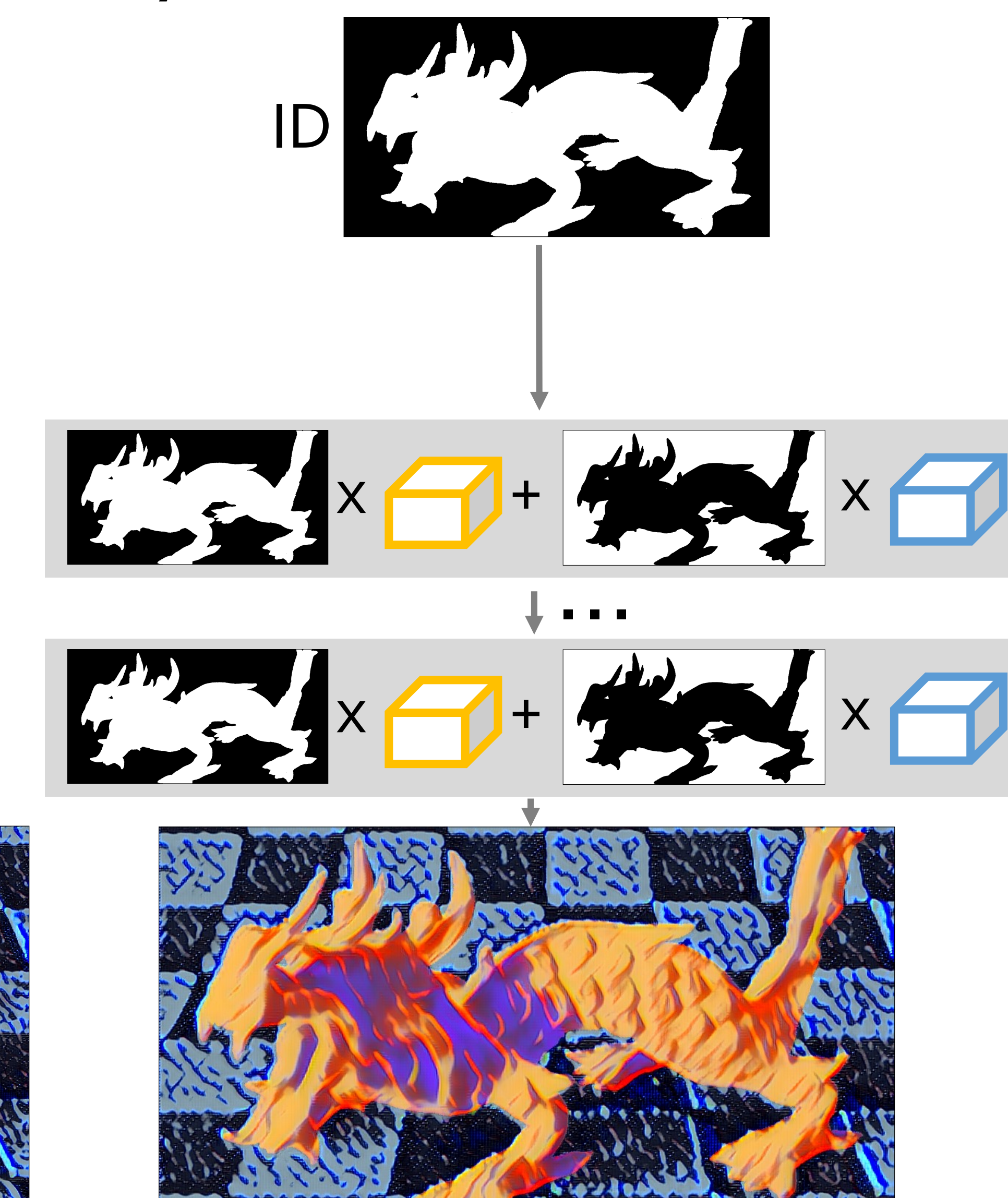


Our Approach

Pre-Trained Network for Stylization

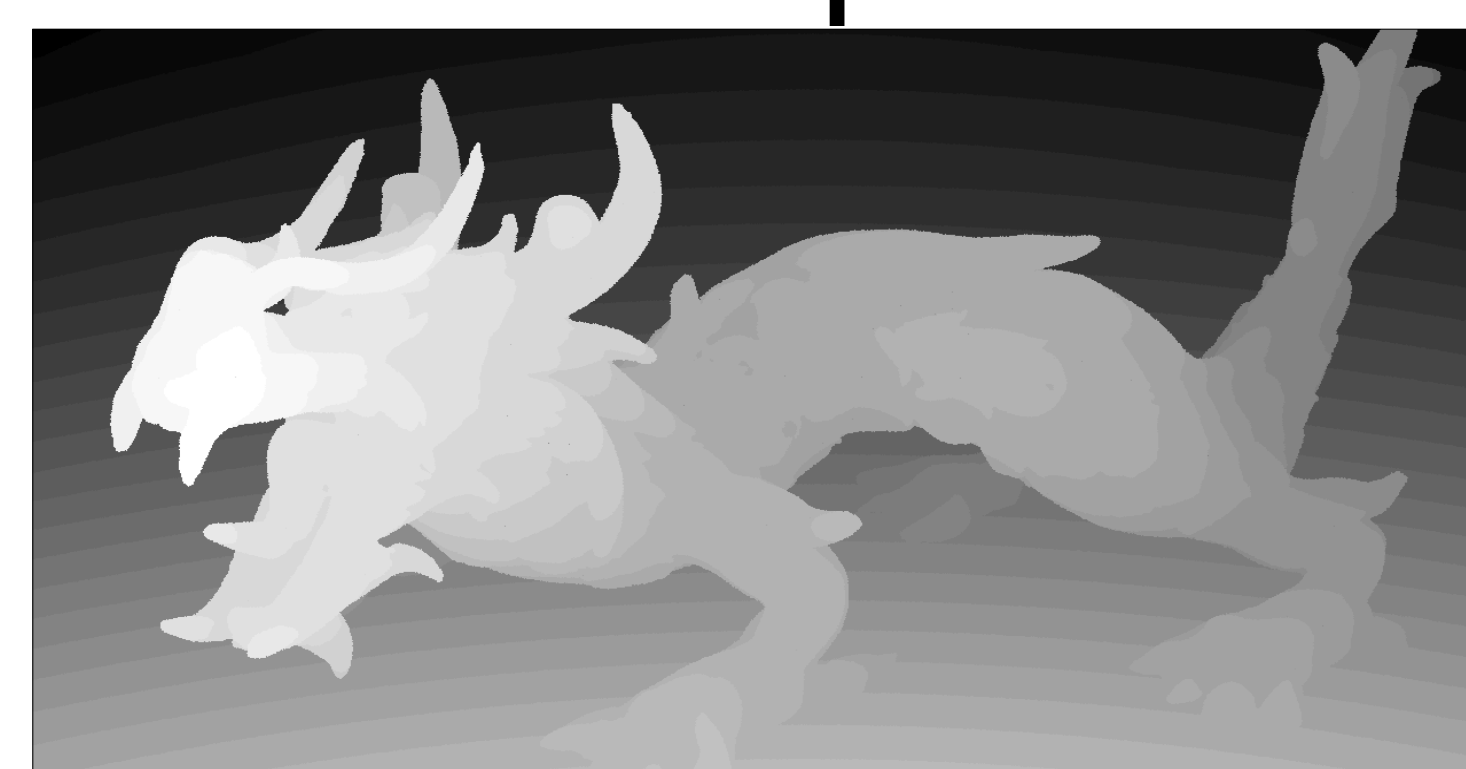


Interpolation of the neural network's stylized activation volumes



Style Guidance

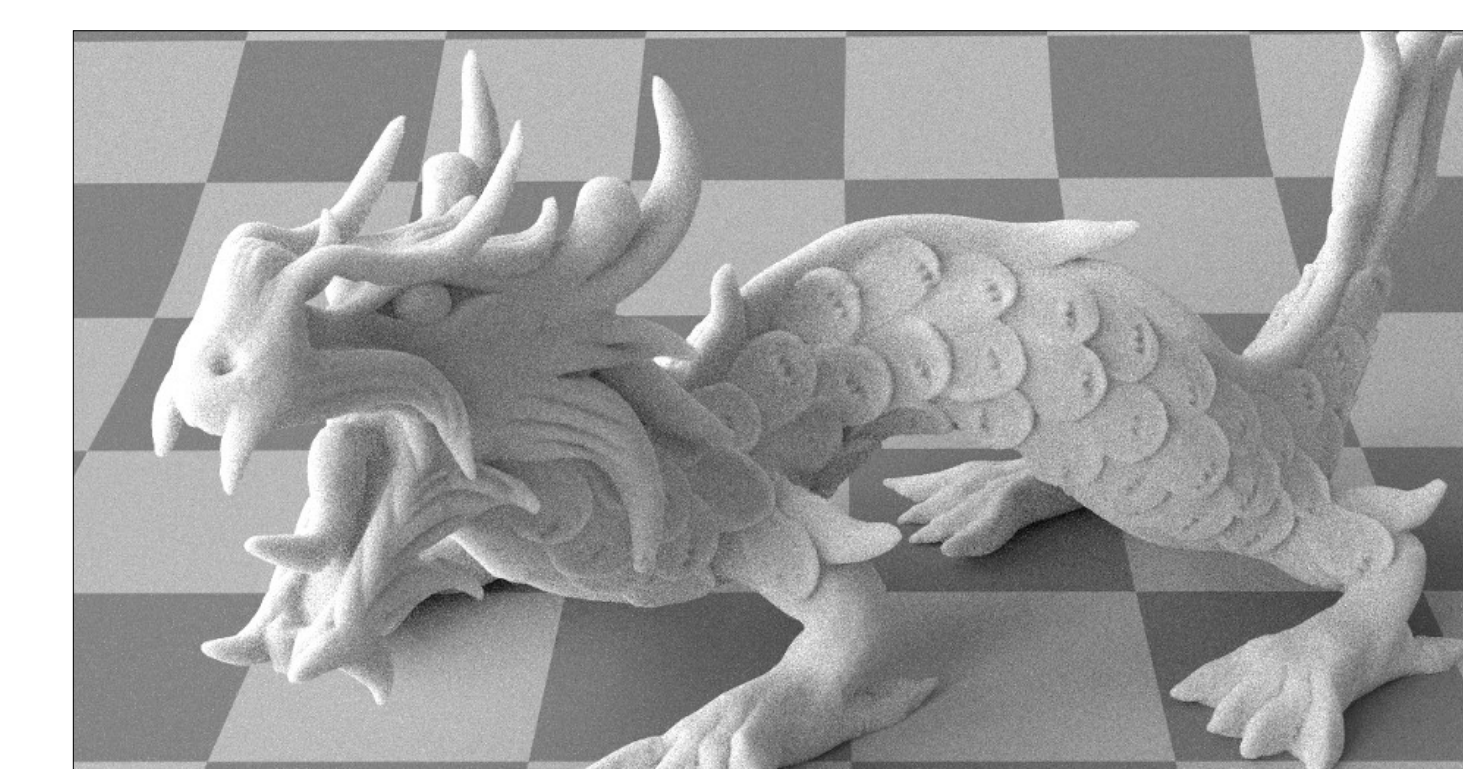
Depth



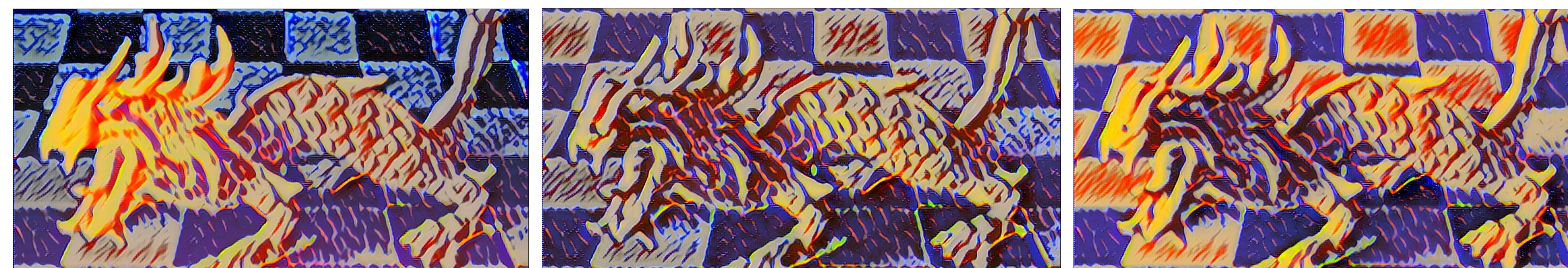
Normals



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.

