On Neural Rendering of Virtual Brush for Chinese Calligraphy

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Abstract

Using a neural network to generate strokes has several advantages. The neural renderer [3] is flexible to generate any styles of strokes and it is more efficient on GPU's than most hand-crafted stroke simulators. In addition, the neural renderer is differentiable and enables end-to-end training which boosts the performance of the agent.

The neural renderer is a neural network consisting of several fully connected layers and convolution layers. Sub-pixel upsampling [1] is used to increase the resolution of strokes in the network, which is a fast running operation and can eliminate the checkerboard effect.

Virtual brush is a model-based approach to synthesizing realistically Chinese calligraphy writing. In this brief, the neural renderer for the virtual brush designed in [2] is proposed.
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Keywords: Neural rendering, Stroke design, CNN, Chinese calligraphy, Virtual brush

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