Characterize Artistic Style based on the Entropy Rate of the Imaginary Stroke Sequences

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Abstract

Recent progress in neuroaesthetics showed that when people appreciate a piece of visual artworks, they can also reconstruct the imaginary stroke sequences from static brushstrokes. This subjective feature is consistent with the general art practice of copying works of art, that is, imitators can interpret the original creative process of practitioners and physically copy their creative tracks. However, this feature has not been measured to characterize artistic styles. This paper attempts to design an experiment to measure this subjective characteristics. 34 pieces of calligraphy and painting works in different styles were chosen as the materials, and 130 testers were invited to draw their imaginary stroke sequences on the chosen pieces. The obtained traces is reinterpreted as AOI(Area of Interests) sequence and modeled as a Markov chain, and its entropy rate with standard error is calculated to measure the randomness. Result show that the measurement can differentiate artistic styles.