Aligning Neural Style Representations for Style-based Clustering

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Abstract

Style-based clustering enables analysis of artistic style evolution, discovery of fine-grained styles, and identification of hidden connections in art collections. However, existing neural style representations inadequately capture style's subjective nature, leading to poor clustering performance or narrow applicability to specific style definitions. We propose methods that incorporate human preference feedback to improve style-based clustering. Our comprehensive evaluation demonstrates that preference-guided alignment significantly enhances clustering quality, though effectiveness depends critically on the base representation architecture and style definition. We provide empirical insights into these dependencies and establish guidelines for selecting appropriate representations for different clustering tasks.

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