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The Efficiency of Visual Artwork: Relating Cognitive and Perceptual Processing to Nonlinear Image Statistics

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Abstract: It has been suggested that artwork is efficiently matched to human visual processing. If artists consistently seek modes of representation that are efficiently processed by the human visual system, these shared techniques should leave statistical signatures. Mounting evidence suggests that regular luminance and spatial statistics in art may influence perceptual and cognitive responses. We have demonstrated that image statistics especially nonlinear statistics are good predictors of human judgments of similarity for pairs of artworks, and other groups have found statistics that appear relevant to higher-level cognitive properties including aesthetic and affective responses. In this poster, we will synthesize results of a suite of our recent behavioral tests of the role of regular statistics in art, which together suggest art is indeed efficient and that artwork contains clues about the nature of human visual processing.