

The Influence of Visual Complexity of Chinese Characters During Reading

Hsueh-Cheng Wang, Dan Simovici, and Marc Pomplun

Department of Computer Science, University of Massachusetts at Boston

Abstract

Stroke count is commonly used to estimate visual complexity of Chinese characters. However, number of strokes can not differentiate the typological feature, and, the visual complexity varies for the characters with same number of strokes. Box counting dimension is a mathematical method to measure complexity of shape, such as a coastline, and entropy is a statistical measure of randomness of the input image. In 4974 Chinese characters, we found that the correlation between strokes and box counting dimension is 0.852, while the correlation between strokes and entropy is 0.585. Besides, box counting dimension can distinguish the typological feature, while number of stroke and entropy can not. The results suggest that box counting dimension is a better visual complexity measurement than number of strokes and entropy.