

Non-Confidential Description - PSU No. 3968 "Computing Emotions through Images"

Keywords:

Image analysis, computer vision, image shape

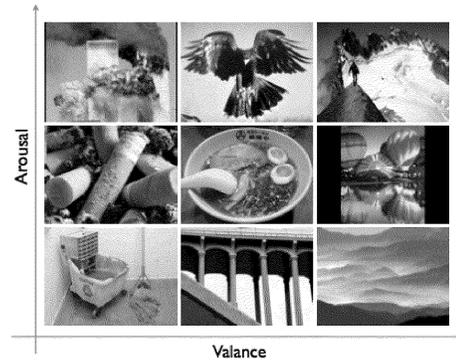
Links:

[Inventor Website](#)

[Published US Patent Application](#)

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Background

The study of human visual preferences and the emotions imparted by various works of art/natural images has been an active research topic in visual arts and psychology. Many articles have been published on modeling the emotional and aesthetic content in images. Psychologists have created the standard International Affective Picture System (IAPS) dataset by obtaining user ratings on three basic dimensions of affect, arousal, and dominance within images. However, there is no effective computational model to understand the visual factors that affect human emotions. There is a need for a computational model that can quantify these emotions based on characteristics within the image, such as shape.

Invention Description

This technology systematically investigates how perceptual shapes contribute to emotions aroused from images through modeling the visual properties of roundness, angularity, and simplicity using shapes. Unlike edges or boundaries, shapes are influenced by the context and the surrounding shapes influence the perceptions of any individual shape. The framework statistically analyzes the line segments and curves extracted from strong continuous contours. This method aims to automatically distinguish the images with strong emotional content from emotionally neutral images, making it the first to predict emotions aroused from images by adopting a dimensional representation.

Advantages/Applications

- First to predict evoked emotions based on shapes in an image
- Distinguishes strong emotional images from emotionally neutral images
- Has potential for photographic feedback based on images

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