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Abstract:

Olivier Messiaen once mentioned: "I am affected by a kind of synopsis which allows me, when I hear music, and equally when I read it, to see inwardly, in the mind's eye, colours which move with the music". It is now known that a number of artists have a condition called synesthesia. Synesthesia is a neurological phenomenon where the stimulus of a sense induces the stimulus of another sense. For instance, there are people who see colours when looking at some specific numbers, or when hearing some specific music. Since it enables the association of typically non-associated concepts, it is believed that this phenomenon is the key to creativity [2].

It is easily perceivable that some rhythms convey a more relaxed experience than others. This also applies to shapes. We can call this the instability/stability of a rhythm or shape. Using a mathematical model created by us, we quantify the instability of a shape present in a painting and then, using the theory of Pulse Saliency [1], generate a rhythm with a similar instability value.

We present a computational system which is able to play the music/rhythms of paintings. The system is organized in three layers, and there are two key modules: an image analyzer tool and a rhythm generator tool. The former extracts the image characteristics and assigns an instability/stability value to a shape, while the latter generates and plays rhythms according to the instability/stability values.

The aim of the system is to provide a multi-sensorial experience similar to synesthesia, using the cognitive and perceptual influence of rhythm in humans. We believe that if people can be exposed to a similar experience, this will improve their overall perception of a work of art as well as enhance their own creativity.



Paul Klee – Rhythmical Stricter and Freer (1930)

Keywords:

synaesthesia, experience, music, geometry, shapes, saliency, instability