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***Abstract*—¡Text of the summary of your article¿**

I. Introduction

This paper is organized as follows: In the next Section, a brief review on Evolutionary Art is presented.

II. Evolutionary Art

Creative evolutionary systems are used to evolve aesthetically pleasing or innovative structures [1].

A. Art Representation for Evolutive Art

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B. Aesthetic measures for evolutive art

MAIN CHALLENGE -¿ HOW TO MEASURE AESTHETICS.

Definition Two modes of aesthetics measures can be defined [2]:

1) *Aesthetics evaluations are expected to simulate, predict or cater to humans notions of beauty and taste.*
2) *Is an aspect of meta-aesthetic exploration and usually involves aesthetic standards created by software agents in artificial worlds.*

According to Galanter [2], computational aesthetics measures can be classified in the following categories:

- Based in Design Principles. Like the rule of thirds or theory of color (e.g., opposite colors) [3].
- Based in Neural Networks and Connective Models.
- Based in Evolutionary Systems:
  - Interactive Evolutionary Computation. The fitness of the individuals is determined by human agents.
  - Performance based goals. Certain properties of the art piece are evaluated and optimized based in performance measures (e.g., usable surface in furniture design generator).
  - Error relative to Exemplars. The individual fitness is measured using a real-world example (e.g., a photography or painting) [1].
  - Complexity measures. This type of measures is based in the idea the complexity is directly related to aesthetics, following the path firstly stablished by Birkhoff [4].
  - Multi-objective. Given the multidimensional nature of aesthetics judgement, multi-objective EAs are a clear option in order to deal with this multidimensionality.
  - Extensions to EA (such as, coevolution, agent swarm behavior, etc.).
- Complexity Based Models

En [5], Li et al. proponen las siguiente mtricas para el aprendizaje esttico:

- Color ingredient.
- Image complexity.
- Image order.
- MC metric.
- BL Metric.

En [6], presenta una comparacin de tres mtricas estticas:

- Benford Law.
- Global Contrast Factor.
- Information Theory.

En [7], presenta una comparacin de cuatro mtricas estticas:

- Machado and Cardoso.
- Ross and Ralph.
- Fractal Dimension.
- A weighted sum of the above mentioned metrics.

En [8] se presenta una aproximacin multi-objetivo para arte evolutivo. Las tres funciones de fitness utilizadas son:

- Benford Law.
- Global Contrast Factor.
- Ross and Ralph (bell curve).

En [3] se presenta un AE para crear arte evolutiva a partir de imgenes vectorizadas. La funcin de fitness utilizada es la diferencia de tono entre distintas regiones de la imagen a distintas resoluciones.

En [1] they present an automatic fitness function specific to portrait painting based in four scores:

- Resemblance.

- Composition (face vs background).
- Tonality.
- Color.

III. Genetic Operators

A. Representation

B. Initialization

C. Mutation

D. Crossover

E. Fitness Functions

1) Histogram: HISTOGRAMA DEF: a graphical representation of the tonal distribution in an image.

2) Image Matching:

IV. Experimental Results

V. Conclusions and Future Work

Aknowledments.:

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