ASTER

SEEDS HackSciArt

SEED 03-IA

RESEARCHERS

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1. ESSENTIAL DIMENSION

(Objective descriptive information of the scientific seed)

NAME

"The complexity of the simple"

KEYWORDS

Cellular automaton, complexity, generation, evolution

BRANCH

The area of Computer Science and Artificial Intelligence is usually part of the Computer Science branch, although it is also closely related to Logic and Mathematics.

ABSTRACT

The only thing that is programmed is the rule that the cellular automaton will follow and, from there, **an emergent behavior of the entire system** arises that is sometimes unexpected, **creating complex patterns from very simple rules**, even going so far as to create interesting figures or even computers capable of solving certain problems.

METAPHOR

Birds are programmed to fly and not collide with any element. As an emergent behavior, curious flight patterns arise that can be observed in nature.

PHASES OF THE USUAL SCIENTIFIC METHOD

Usually, the complexity of cellular automata is studied based on an exhaustive study of the evolution of these automata and how the elements of each cell interact with their neighbors.

For example, in elementary cellular automata there are four types of rules, depending on the type of patterns that appear throughout the computation of the automata.

TOOLS

In principle, it is usually observed visually how the system evolves, that is, what patterns it generates, and later, it is studied what type of properties this evolution has through mathematical formalisms such as numerical analysis and complex systems.

RESOURCES

Consult.

2. ADDITIONAL DIMENSIONS

(The following sections add subjective information from the scientific seed, in order to inspire creatives in the creation of a SciArt work. Some of the sections may not have information if the researcher chose not to specify anything.)

SCIENTIFIC MOTIVATION

From my point of view, the simplicity of some mathematical models has been a source of inspiration, in addition to some demonstrations that, although it seems simple, the reasoning behind it is very complex.

METAPHYSICS

The human being is an inherently social entity; that is why it has to interact with other living beings, and thanks to these interactions, "programmed" in our being, they give rise to results that are more complex than what the different parties thought; as they say, the value of the sum of two ideas can be greater than the sum of the value of the two ideas separately.

ETHICS

Possible improvements in the very way in which we relate, including the way of seeing things (some simple ideas can lead to much more complex results than expected).

COLORS

Unanswered.

AROMAS

Unanswered.

FLAVORS

Unanswered.

SOUNDS

Electronic music.