

**Val Tsourikov****Paper: Creative Principles for Strong Emotional Impact****Topic: Creative Principles****Authors:****Val Tsourikov,**

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**References:**

[1] Tsourikov, V., , (2013). "Architecture of Self Learning A.I. Platform for Generative Art", GA2013, Milano, Italy, 2013.

**Abstract:**

A.I. platform for Generative Art [1] can't be built without a knowledge-base of creative principles, used in visual art and photography to create strong emotional impact.

We focused on photography and some areas of modern art to formulate a list of such principles. Currently there are twenty two principles in the knowledge-base.

Several principles are universal by nature and can be found in general systems design (dynamization, fragmentation of visual object, merger of the object with background, multiple objects).

Large group of principles are based on idea of creating conflict between common sense knowledge and interpretation of visual pattern (imitation of miracle, upside down, almost impossible, inverse expectation, technical function transfer, interaction with copy).

Three principles focus on predictable human reaction (anticipation of danger, object or action of strong emotion, opposite emotions).

Intuitively, modern photo artists very often try to find novel ideas by putting main subject into unusual environment, i.e. they actually try to increase semantic distance in composition of the photo. Unfortunately, due to "in-box thinking" phenomenon such approach results in millions of photographs, which either have no novelty at all, or have no aesthetic value. We believe that knowledge base of creative principles will help artists to find truly novel scenarios.

Creative principles can be used in combination with algorithmic generative art. For example, an artist applies creative principle(s) from the knowledge-base to design scenario of the photo or art work, then uses formal generative art to optimize parameters or find novel version of original concept.

We suggest following work flows.

Version A: An artist choses principle(s) → novel composition is created → algorithm of generative art is applied to optimize the concept.

Version B: By running generative art algorithm the artist picks up the most promising concept → knowledge-base of creative principles is used to optimize the concept.

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**Creative principles, photography, A.I. platform, semantic distance**

# Creative Principles for Strong Emotional Impact

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## Knowledge base of creative principles

A.I. platform for Generative Art [1] can't be built without a knowledge-base of creative principles, used in visual art and photography to create strong emotional impact.

We focus on photography and some areas of modern art to formulate a list of such principles.

Author of the paper also studied creative principles in technology, science and mathematics [2, 3]. To avoid potential biased opinions the decision was made to formulate creative principles in photography and modern visual art by doing analysis of raw data, i.e. photos and art works.

Currently there are twenty two principles in the knowledge-base.

Several principles are universal by nature and can be found in general systems design (dynamization, fragmentation of visual object, merger of the object with background, multiple objects). Three principles focus on predictable human reaction (anticipation of danger, object or action of strong emotion, opposite emotions).

Large group of principles are based on idea of creating conflict between common sense knowledge and semantic interpretation of visual pattern (imitation of miracle, upside down, almost impossible, inverse expectation, technical function transfer, interaction with copy).

Intuitively, modern photo artists very often try to find novel ideas by putting main subject into unusual environment, i.e. they actually try to increase semantic distance in composition of the photo. Unfortunately, due to "in-box thinking" phenomenon such approach results in millions of photographs, which either have no novelty at all, or have no aesthetic value. We believe that knowledge base of creative principles will help artists to find truly novel scenarios.

## Conflict as a source of strong surprise

By focusing on art works with strong emotional impact we found that many surprising images contain conflicts.

Conflict between the image and person's internal model of the world: for instance, well trained ballerina attracts attention by jumping unusually high in the air. Such a jump is an example of quite popular principle, called *extreme pose or move*. By nature it is parametric type of principle. Novelty - and surprise - is created not by designing a new composition, but by changing parameter (height of jump) of well-known composition.

Conflict inside the image: principle of *opposite emotions* is based on image composition, which includes two stories; each story generates its own emotion; two emotions belong to opposite groups, like joy - sorrow, for example.

*Inverse expectation* principle can be used to create conflict between a process with expected normal result and actual result which is inverse to expected. When a wooden arrow hits a soap bubble, normal expectation is to watch bubble burst. Flying arrow and soap bubble establish expectation based on common knowledge. To inverse expectation an artist creates an image with arrow broken into pieces and unchanged bubble.

## **How to design novelty with creative principles**

Creative principles can be used in combination with algorithmic generative art. For example, an artist applies creative principle(s) from the knowledge-base to design scenario of the photo or visual art work, then uses formal generative art to optimize parameters or find novel version of original concept.

We suggest following work flows.

Version A: An artist chooses principle(s) → novel composition is created → algorithm of generative art is applied to optimize the concept.

Version B: By running generative art algorithm the artist picks up the most promising concept → knowledge-base of creative principles is used to optimize the concept.

In ideal world we find emotional concept first by applying following principles: anticipated danger, opposite emotions, inverse expectation, almost impossible. Then one or more principles can be used from the list below. Combinations of independent principles are able to generate concepts with high level of novelty.

### **List of creative principles**

1. Almost impossible. Image composition with very low probability of existence in physical world.
2. Inverse Expectation. Intuitive expectation of process/action is in conflict with actual result on the image.
3. Anticipated danger. Subject of an image is in risky situation, or even in the point of no return.
4. Object/action of strong emotion. Skull and bones is a good example, overused though.
5. Human behavior imitation. Animals, birds, insects imitate humans.
6. Extreme pose or move. Exceptional performance of known action.
7. Fragmentation. Main subject/object is fragmented, parts may be displaced.
8. Merger. Subject is merged with background or other objects of the image.
9. Bizarre analogy. Example: fish plays role of a tie.
10. Opposite emotions. Image includes two compositions, generating opposite emotions.
11. Multiple objects. Group of similar objects create synergy effect.
12. Tip of iceberg. Only very small part of object is shown.

13. Imitation of miracle. Image imitates violation of law of physics.
14. Interaction with copy. Subject (person or animal, bird etc.) interacts with own copy.
15. Replace environment. Put known image composition in novel environment.
16. Upside down. House standing on its roof as an example.
17. Common sense conflict. Composition contradicts commonsense knowledge.
18. Novel light. The scene is illuminated by rare type of "light": X-ray, sparks, for example.
19. Continuation. Image includes road, lines, wires, rales, shadows. Old, but still good principle.
20. Dynamization. Move, shake, rotate main photo subject or secondary objects. Dali Atomicus, photo by P.Halsman, is great example.
21. Technical function transfer. Image of technical function is used on natural objects.
22. Chaos. Introduce chaotic moves, colors, structures onto the image. Getting very popular.

## Application of several principles in ballet photography

The idea was to design concepts of photo by direct application of creative principles.

Photo on Fig. 1 illustrates two principles: *replace environment* (ballerina poses on lake instead of theater) and Almost impossible (she stands on water surface, sort of).

On second photo (Fig. 2) we see ballerina, who jumps so well, that "no gravity" illusion is created. The photo shows application of *extreme pose/move* principle.

Principle *tip of iceberg* helped to find an idea of third photo (Fig. 3).

More photos will be presented at the conference.



*Figure 1 – Ballerina on lake*



*Figure 2 – Ballerina jumps in park*



*Figure 3 – pointe shoe*

## **References**

1. Tsourikov, V. Architecture of Self Learning A.I. Platform for Generative Art and Films. In International Conference on Generative Art. 2013. Milan, Italy: Generative Design Lab, Milan Polytechnic.
2. Tsourikov, V. Inventive Machine: second generation. *AI and Society*, 1993, 7(1): p. 62-77.

Tsourikov, V., et al, Document semantic analysis with knowledge creativity capability, 2000. U.S. Patent number 6,167,370.