Conscious Iterative Structuralism (C.I.S.): A New Language in Digital Art, Situated Between Mathematical Structure and Visual Pedagogy

Monika KARACSONY
Researcher & Curator of C.I.S. (Conscious Iterative Structuralism), Bucharest, Romania
prgatfilms@gmail.com

Abstract

This paper documents and analyses Conscious Iterative Structuralism (C.I.S.), a new visual language in art developed by the Romanian structural-conceptual artist Marius V. Popescu. In C.I.S. an image is not generated. It uses neither artificial intelligence nor code. It arrives through the conscious traversal of a structured field of possibilities opened by a single geometric form, the spiral. Working in a virtual environment, the artist applies a single manual procedural algorithm of his own invention, a sequence of operations executed by hand: deformation, then cloning and mirroring, then superimposition on the horizontal axis in both directions, then rotation, and finally a selective use of color.

The study has three aims. The first is to describe this process precisely enough that it can be examined rather than merely admired or dismissed as a style. The second is to identify the structural properties that set it apart, above all a reproducible link between the orientation of a work and what the work means, which the artist tests by rotating each piece through 180°. The third is to ask what the process implies for teaching, since working inside it appears to cultivate a distinctly structural way of seeing.

The analysis is qualitative. It rests on the foundational documents of C.I.S., on a body of finished works, and on a step-by-step reconstruction of how those works come into being. Two findings stand out. A finished piece is chosen from within an expanding field rather than built toward a fixed idea; and when a piece is turned upside down, the same underlying structure yields a second, genuinely different reading, which suggests the structure reconfigures itself according to an internal rule. C.I.S. is placed here alongside the contemporary automated generation of images, where the point is simply that its decisive act, recognition and choice, belongs to a person and not to the procedure. The paper closes by arguing that C.I.S. is worth reading as more than an artistic practice. It is also a way of thinking, one that sits where visual construction meets structural logic, and it has real uses in animation and science-fiction cinema, in reversible visual identity, and in immersive installation.

Keywords: Art & Music, conscious iterative structuralism, new visual language, generative form, spiral, structural reversibility, visual pedagogy.

1. Introduction

Over the last few years, making a digital image and generating one have quietly become the same act for many people, largely through digitalization and the use of artificial intelligence. A tool proposes; the user picks. And a question follows that is less about software than about authorship: when the result arrives ready-made, is the person still constructing anything, or only choosing among options prepared for them? The line worth drawing runs between producing a result and building a process. A result can be handed off. A process cannot, because it holds decisions inside it, and decisions carry the experience of whoever made them.

The artistic language documented in this paper takes the harder second path on purpose. Conscious Iterative Structuralism, hereafter C.I.S., was created by the Romanian structural-conceptual artist Marius V. Popescu, and it asks whether an image can be constructed as a conscious, iterative process held inside a controlled formal structure. Its founding hypothesis is easy to state and harder to practice: form can serve at once as a means of generation and as a carrier of meaning, but only if it is traversed rather than simply used. The construction itself happens in a virtual environment, in vector software, where the artist executes a single procedural algorithm of his own invention entirely by hand.[9] That manual execution opens a field of practically unlimited variation, and within that field certain configurations settle into finished works.

Three questions organize the study. First, can the C.I.S. process be described closely enough to be examined, rather than asserted as a personal style or defended as a manifesto? Second, what exactly distinguishes it? The most striking candidate is a reproducible relationship between how a work is oriented and how it reads, which the paper examines through the 180° rotation the artist relies on. Third, what does the process teach? There is a claim, worth testing, that working within this language builds a structural kind of visual thinking that does not lean on automation.

The tone throughout is analytical, not promotional. Where the source documents reach for large words, this paper puts the underlying claim into terms one can actually weigh and, if warranted, dispute. The point is not to shrink the work but to set it in its proper company: the interdisciplinary conversation, familiar to readers of this journal, that runs between artistic practice, structural logic, and the study of consciousness. Throughout, C.I.S. is taken to be what its author says it is, a new language in art, not one more technique or one more style.

---

[9] On the algorithm defined by clear specification, inputs, outputs, finiteness and effectiveness, see Donald E. Knuth, *The Art of Computer Programming* (Addison-Wesley, 1997). The C.I.S. procedure is algorithmic in exactly this sense, while remaining manual.

2. Background and Position of the Problem

Few motifs are older than the spiral, and through most of art's history it has been an ornament or a symbol. C.I.S. breaks with that from the first move. The spiral here is not something to be looked at; it is an operational base, a rule of growth that exists to be intervened upon.[10] So the thing in front of the artist at the start is not an image but a structure, one of the very few elementary forms that hold order, evolution, and expansion together in a single geometry. What defines the language is never the spiral itself. It is the intervention made upon it.

That starting point places C.I.S. squarely inside a problem of the present moment. As tools make visual variation cheap and endless, the scarce act is no longer producing forms; it is recognizing which form, out of so many, actually carries meaning. C.I.S. can be read as an extended inquiry into precisely that act. Its wager is that value in image-making has shifted, away from the capacity to generate variation and toward the capacity to select meaning from within a structural field. Popescu offers the language on two levels at once, as a practice and as a way of thinking, and supports both with a foundational study and a portfolio that works as a demonstration.

3. Materials and Analytical Approach

This is a qualitative, descriptive study of an artistic language. Three kinds of material were examined. The foundational documents of C.I.S. came first, a research note together with a conceptual thesis on how a work comes to be recognized. To these were added the artist's own account of the process, and a body of finished pieces, among them the works shown as Morphoon, GameOn, Grandparents, and Sanctuary, along with the installation cycle ARCA. The analysis then proceeded on two fronts. One reconstructed the generative sequence step by step from the documents and the artist's account, describing each operation and what it does to the emerging structure. The other read the finished works for recurring structural properties, watching in particular what rotation does, and using the artist's habit of setting a piece at 0° against the same piece at 180°. The object of study is a language, not a population, so the right standard is descriptive adequacy and internal consistency rather than statistical inference. The process is laid out below in the order the artist follows. That order matters: each stage depends on the one before it, and reshuffling them changes the outcome.

---

[10] On the spiral as an expression of growth that preserves structural identity as scale increases, see D'Arcy W. Thompson, *On Growth and Form* (Cambridge University Press, 1917). Thompson's logarithmic *spira mirabilis* underwrites the treatment of the spiral in C.I.S. as a rule of growth rather than an ornament.

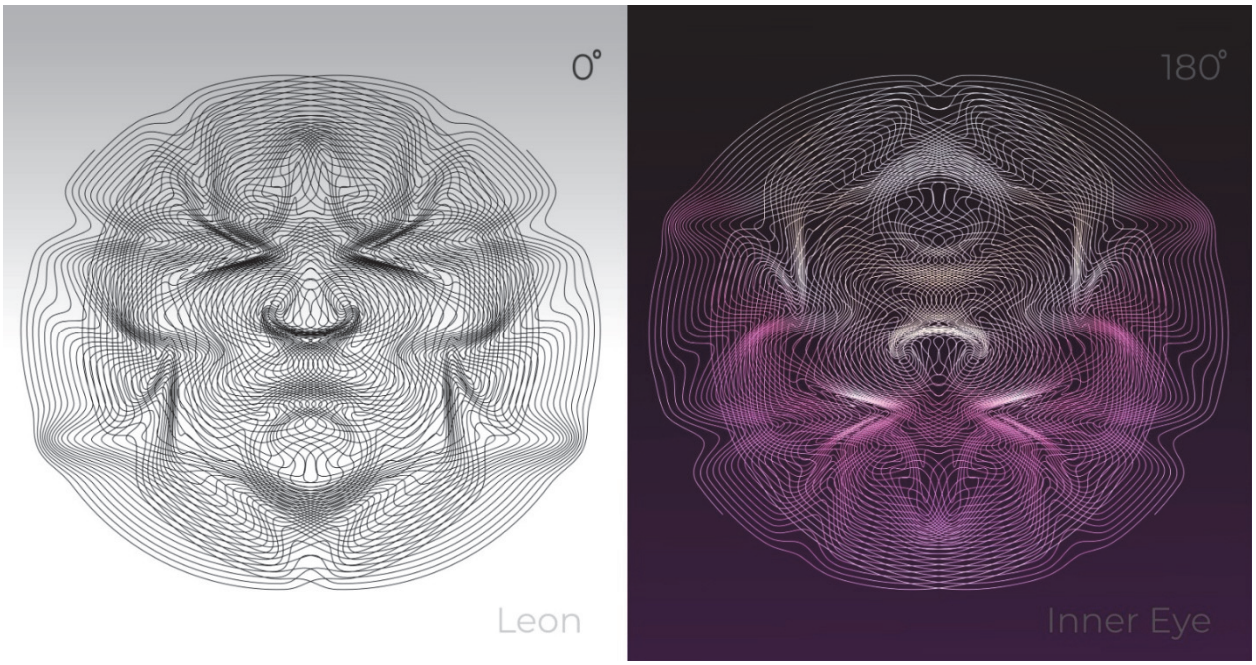


Figure 1. Leon (0°) and Inner Eye (180°)

3.1 The generative form: the spiral as principle

Everything begins from a single spiral, taken as a fundamental structure of organisation.[11] This is the whole starting material: one geometric form, worked by one manual algorithm the artist devised. There is no image yet, and no subject in mind, only a rule of growth. Applying that algorithm by hand in the vector environment opens a theoretical space of nearly unlimited variation. That space is layered: every intervention on the form adds a new level of possibility above the last, and where it leads depends entirely on the person creating it.

3.2. Deformation: the entry of decision

If the spiral is the rule, deformation is the first move against it, and the first decision. The gesture can look trivial, a small displacement, a bit of tension, a curve bent out of true,

[11] Theodore A. Cook, *The Curves of Life* (Constable, 1914), draws the distinction the present argument relies on, between the inert perfection of the mathematical spiral and the "living" spiral that acquires vitality through small deviations. In C.I.S. that deviation is the artist's manual deformation.

yet it changes how the whole thing will evolve from there.[12] Nothing means anything visually at this stage. But something is already intended: the deformation carries a state, an intuition, a direction the artist feels rather than states. This is the moment the author enters the work. From here on, whatever happens bears the mark of that first gesture, which does not fix the form so much as fix the direction the possible will take.

3.3. Controlled iteration: cloning and mirroring

After that first intervention the process starts producing relations rather than images. Cloning does not copy the deformed form; it multiplies it as a carrier of variation, so that each replica already holds the trace of the original gesture.[13] What gets multiplied, in other words, is a deviation and not a static shape. Then mirroring brings in symmetry, though not symmetry as balance. Here it is a mechanism of tension, since it sets the same structure against itself from opposite sides. Cloning widens the field. Mirroring folds it back on itself, and with that fold the possibility of structural conflict appears for the first time. Meaning, when it comes, will come out of exactly this controlled contradiction.

3.4. Superimposition on the horizontal axis: the emergence of meaning

In superimposition the multiplied and mirrored forms are laid over one another along the horizontal axis, in both directions, so that they stop merely sitting side by side and begin to cross, overlap, and interfere. Inside that interference, recognizable structures surface, structures nobody drew but that a viewer recognizes.[14] This is the decisive turn in the process, the point where structure gives way to meaning. And meaning here does not sit in the image alone; it sits in the meeting between the structure and whoever is looking. One configuration will support quite different recognition depending on the viewer, on their

[12] Wassily Kandinsky, *Point and Line to Plane* (Bauhaus Books, 1926), analyses the line as an active force produced by tension applied to the point, a reading that supports the account of deformation given here.

[13] Benoit Mandelbrot, *The Fractal Geometry of Nature* (W. H. Freeman, 1982). The self-similarity that generates complexity through iteration is applied manually in C.I.S., the deformed spiral serving as the repeated unit.

[14] Rudolf Arnheim, *Art and Visual Perception* (University of California Press, 1974), and E. H. Gombrich, *Art and Illusion* (Pantheon, 1960). Both establish that recognition is an active, structuring act of the perceiving mind, which is why an emergent figure can be recognised without having been drawn.

memory, their eye, their tolerance for abstraction.[15] Some people report faces. Others see organisms, or machinery. The work opens a field of possibilities, and meaning switches on inside that field, differently, at the moment of looking.

3.5 The 180° return

Once superimposition has done its work, the process turns the whole thing through 180°. This is not an occasional move but a constant of the language: it happens with every C.I.S. work, without exception. What the rotation changes is not the form but the meaning. Inverted, the same structure does not just repeat; it delivers a second configuration that reinterprets the first.[16] In practice two related works come out of one structure. There is the form at 0°, which the artist controls and builds deliberately, and there is the form at 180°, which the artist did not fully see coming and which, in his own phrase, is offered by the structure itself. The first is intention. The second is discovery. Nothing is lost in the turn; the same information is reorganized.[17] Rotation does not close the work; it opens a second line of interpretation. More than that, the 0°/180° relation guarantees an infinite polysemy: because the reading is a function of orientation and of the viewer, the structure never exhausts the meanings it can carry.

Two further effects belong here, before color is introduced. The first is an emergent three-dimensionality: a sense of depth and volume that is not constructed by the classical means, neither chiaroscuro nor the perspective line, but arises from the density and interference of the lines themselves. The second is a simultaneous infinite polysemy, distinct from the polysemy of rotation: several readings held at once within a single configuration. These two effects are not universal to every C.I.S. piece. They appear, reliably, only in works whose spiral is built from many turns, a minimum of some twenty to thirty spires; below that density the field is not rich enough to sustain them. Taken together, these features define the language and recur across the corpus: a single algorithm invented by the artist, a single geometric form, the 0°/180° reversal, an infinite polysemy, an emergent (not

[15] C. H. Waddington's notion of the "epigenetic landscape", in *The Strategy of the Genes* (Allen & Unwin, 1957), offers a biological analogy for a form that settles into stable configurations by moving through a field of possibilities rather than being fixed in advance.

[16] Douglas R. Hofstadter, *Gödel, Escher, Bach: An Eternal Golden Braid* (Basic Books, 1979). The 180° rotation functions as a "strange loop", a change of level that discloses a new yet equally coherent structure within the same whole.

[17] The principle is Lavoisier's, *Traité élémentaire de chimie* (Cuchet, 1789): nothing is lost, nothing created, everything is transformed. Transposed to structure, rotation loses no information; it reorganises it.

constructed) three-dimensionality, and a simultaneous infinite polysemy, each of them, on works of sufficient density, a constant rather than an accident.

3.6 Colourisation and clarification: committed choice

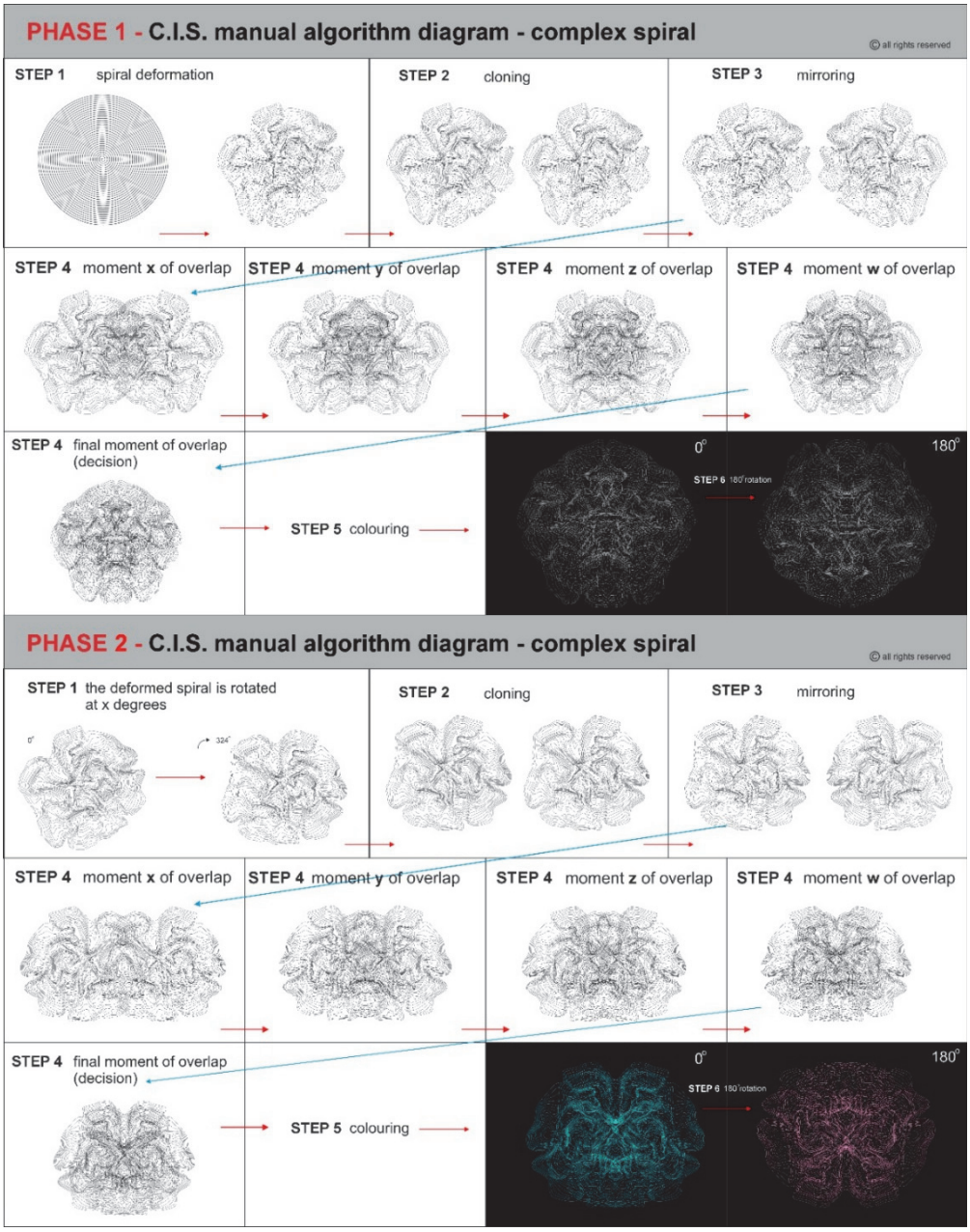


Figure 2. C.I.S. - phases

Color comes last, and it is not decoration. It is an instrument of selection. Out of the dense mesh of lines the artist lights up the traces that carry a gaze, an organic edge, a point of tension. Color also deepens the optical impression of relief, so a flat surface seems to gain planes it does not physically have.[18] And it individualizes, which is the moment a structure reads as a particular being rather than a pattern. A last operation, which the artist calls clarification and does not always use, strips away visual noise so the chosen configuration can be read cleanly. Where superimposition held an open field, color and clarification are the committed choices, the point at which the maker says, in effect: this is what I found in the structure.

4. Results: Structural Properties

A number of properties recur across the body of work, and together they mark C.I.S. as a coherent visual language rather than a stack of images: a single algorithm invented by the artist working on a single geometric form; the selection of the work from within an expanding field; the 0°/180° reversal; an infinite polysemy carried by that reversal; and, on works of sufficient spiral density, an emergent three-dimensionality together with a simultaneous infinite polysemy. The two that most sharply distinguish the language are examined below; the others have been set out in the account of the process above.

4.1. The work is chosen, not generated

Each stage of the process multiplies the field of variation, so the work advances through a run of dependent expansions, each one growing out of the last. Any single configuration is therefore one instance among an enormous number of possible instances. Out of that field the finished work is not produced toward a preconceived image; it is chosen.19 The artist looks for the configuration where formal tension, structural balance, and the arrival of meaning come into coherence at once. That choice is neither arbitrary nor automatable, because it rests on an act of discernment. The consequence for authorship is exact. The author is less a producer of forms than an operator moving through a field of possibilities, and the artistic act slides from execution toward decision. This positioning within the field turns on the maker's conscious intervention, and the procedure on its own cannot reproduce it.

---

[18] György Kepes, *Language of Vision* (Paul Theobald, 1944), shows that depth and volume can be induced by the density and interference of lines, without linear perspective, which grounds the “emergent volume” reported in the works.

[19] Luigi Pareyson, *Estetica. Teoria della formatività* (Edizioni di Filosofia, 1954), gives the philosophical ground for post-determination: form is not the application of a pre-existing idea but invents itself as it is made.

4.2. Structural reversibility: orientation as a carrier of meaning

The second property is that reproducible link between position and interpretation under 0°/180° rotation. Across the corpus, turning a finished work upside down does not flatten it into a mirror image. It produces a genuinely distinct reading that the same structure holds. Sanctuary is the clearest case: one animal is legible at 0°, a different animal at 180°, both inside a single graphic sign. The behavior points to an internal reconfiguration, as though the structure keeps more than one stable reading folded inside it and orientation is what selects between them.[20] Alongside reversibility stand the two density-dependent effects already named: an emergent three-dimensionality that arrives without any conventional perspective technique, and, in works built from many spirals, a simultaneous polysemy in which several readings are held at once. On works of sufficient spiral density these are constants of the language rather than happy accidents; why they occur perceptually is a question worth a study of its own.

5. Discussion

Put together, these properties suggest that C.I.S. is best understood as a way of mapping a space of possibilities and then moving through it, so that the finished image is a position taken inside that space rather than an object imported from outside it.[21] This quietly rearranges three familiar terms, structure, process, authorship, and it does so in a way that opens onto a larger question about how meaning comes out of form at all.

The language also carries a particular order of cognition. On the traditional account, an artist moves from intention through design to execution and then to a finished work, with feeling arriving in some outside viewer at the very end. C.I.S. rearranges that order. A structure is generated and seen, processed intellectually, and felt by the artist, who is at once the maker and the first person to look, and only then is a decision taken and the work finished for anyone else. One need not accept this as a universal account of art to grant that it names something specific about this practice: here recognition and feeling happen inside the process, at the point of choice, and not only after it.

Read this way, and only this way, C.I.S. touches the contemporary automated generation of

[20] Umberto Eco, *Opera aperta* (Bompiani, 1962). The “open work”, rigorously constructed yet sustaining a plurality of readings, is the closest theoretical precedent for the simultaneous polysemy described here.

[21] On complex order emerging spontaneously from unstable dynamics, see Ilya Prigogine and Isabelle Stengers, *Order out of Chaos* (Bantam, 1984). The “dissipative structures” they describe are a scientific counterpart to the self-organisation of dense line-fields in C.I.S.

images, but not as a quarrel. An automated tool can turn out to be varied in enormous quantity, and yet that abundance is, in a real sense, undifferentiated; it fills a uniform field. What C.I.S. isolates is the complementary act: the differentiation of that field by a consciousness that recognizes which configuration matters.[22] The point does not need any claim about what machines are unable to do. It is enough to notice that the decisive move, choosing under recognition, is defined as human and, by the way the process is built, cannot be handed to the procedure. The point is not to oppose automation but to locate it, to say where, in a process that machines can partly take over, the interpretive act still has to be human.

5.1. What the process teaches

If exploring the field is a human act, then it can be taught, and the educational side of C.I.S. grows out of its structure instead of being tacked on afterward. Working within the language builds three things. It builds discipline, because the process is sequential and its stages cannot be skipped or rushed; each one asks for attention. It builds patience, because complexity accumulates rather than arriving at all at once, so the practitioner learns to sit with a process and not just collect a result. And it builds the harder capacity to see past the form, to notice meanings that are not obvious and to interpret rather than merely register what is there. On this reading C.I.S. trains structural visual intelligence, one grounded in relation and recognition, and that competence grows more useful, not less, as the tools around it grows more automated.

5.2 Applications

The same properties carry C.I.S. well beyond the studio. In animation, science-fiction cinema, and game design, the 0°/180° duality meets a real production need: a single geometric matrix can give a character at one orientation and an altogether different entity at the other, so an entire family of related figures can be drawn out of one complex spiral while the style holds together across all of them. This is directed morphogenesis, not random generation. In visual identity the same reversibility supports what one might call semantically reversible signs, where a single mark carries two complementary identities through rotation, as Sanctuary does, letting a brand hold a duality inside one memorable form instead of multiplying symbols. And in monumental or immersive work the installation cycle ARCA stretches the language from form into time and space, arranging a

[22] Lev Manovich, *Software Takes Command* (Bloomsbury Academic, 2013), frames the passage from traditional media to software, against which the “manual algorithm” of C.I.S. can be read as a form of creative resistance.

sequence of collections into an evolutionary narrative and treating the spiral as an instrument of conceptual construction rather than a decorative one.[23] Beyond these, the same properties open several further directions, each drawing on a mechanism the earlier sections have already established rather than on a new claim.

- **Architecture and façade design.** Treated as a generative armature rather than an ornament, the spiral translates into parametric panels, contemporary mashrabiya, and façades of variable density, where a mathematical rule of growth becomes a physical, load-bearing surface. This is the most direct passage from the structure's geometry to built form.
- **Neuroaesthetics and visual therapy.** Because one configuration sustains different recognitions in different viewers, the works offer a controlled instrument for studying perception, attention, and projection, a structurally governed counterpart to the Rorschach image, and a point of contact with the study of consciousness.
- **Textile and material design.** Patterns that change meaning under rotation give woven and printed surfaces a legible double identity, carrying the reversibility of the sign from the page onto cloth and material.
- **Visual cryptography and anti-counterfeiting.** A mark whose second reading emerges only at 180° and cannot be reconstructed without the manual process becomes a mechanism of authentication, since the decisive positioning is, by construction, not reproducible by the procedure alone.
- **STEM and STEAM education.** Beyond the pedagogy set out above, the process is a concrete way to teach iteration, symmetry, and self-similarity, letting students watch abstract mathematical principles become visible form.

What commends C.I.S. to these fields is not only what it produces but how, through rigor, through reproducibility, and through a controlled density of meaning.

6. Conclusion

This paper set out to describe Conscious Iterative Structuralism as a process, to name what distinguishes it structurally, and to place it inside current questions about how images are made. C.I.S. begins with one geometric form and one manual algorithm invented by the

[23] Sol LeWitt, "Paragraphs on Conceptual Art" (*Artforum*, 1967): "the idea becomes a machine that makes art." C.I.S. shares LeWitt's procedural rigour, the rules preceding execution, but adds a level of cognitive control, since the work does not appear without the operator's conscious selection. The exhibition title *Ideea, mașina care face artă* acknowledges this lineage directly.

artist and, through a strictly ordered sequence carried out by hand, opens a layered field of possibilities from which a coherent work is chosen rather than generated. Its force lies not in any single trait but in the features that hold together at once: the single algorithm and single form, the 0°/180° reversal, the infinite polysemy that reversal carries, and, on works of sufficient spiral density, an emergent three-dimensionality and a simultaneous infinite polysemy. It is the combination that generates the impact and invites exploration and use. Taken at its widest, C.I.S. is not only a practice but a new language in art, and an instrument for probing how form, process, and knowledge relate, where the structure belongs to mathematics and the recognition of meaning belongs to a human being.[24] That division of labour, and not any posture of opposition to automated tools, is the language's central and most durable claim.

Note on Sources: This study draws on the foundational research note and conceptual documentation of C.I.S. and on the artist's own presentation of the generative process, including the theoretical and visual dossier compiled by the artist. C.I.S. and its manual algorithm are the original work of the structural-conceptual artist Marius V. Popescu; the analysis, framing, and argument of the present paper are the author's.

References

Arnheim, R. (1974). *Art and visual perception: A psychology of the creative eye*. University of California Press.

Cook, T. A. (1979). *The curves of life*. Dover Publications. (Original work published 1914).

Eco, U. (1989). *The open work* (A. Cancogni, Trans.). Harvard University Press. (Original work published 1962).

Gombrich, E. H. (1960). *Art and illusion: A study in the psychology of pictorial representation*. Pantheon Books.

Hofstadter, D. R. (1979). *Gödel, Escher, Bach: An eternal golden braid*. Basic Books.

Jung, C. G. (1964). *Man and his symbols*. Doubleday.

Kandinsky, W. (1979). *Point and line to plane* (H. Dearstyne & H. Rebay, Trans.). Dover Publications. (Original work published 1926).

Kepes, G. (1944). *Language of vision*. Paul Theobald.

Knuth, D. E. (1997). *The art of computer programming* (3rd ed.). Addison-Wesley.

[24]Carl Gustav Jung, *Man and His Symbols* (Doubleday, 1964), on the archetype as a universal pattern of recognition, informs the account of what viewers recognise at the moment of superimposition.

Lavoisier, A. (1789). *Traité élémentaire de chimie*. Cuchet.
LeWitt, S. (1967). Paragraphs on conceptual art. *Artforum*, 5(10), 79–83.
Mandelbrot, B. B. (1982). *The fractal geometry of nature*. W. H. Freeman.
Manovich, L. (2013). *Software takes command*. Bloomsbury Academic.
Pareyson, L. (1954). *Estetica: Teoria della formatività*. Edizioni di Filosofia.
Popescu, M. V. (2026). *Structuralism iterativ conştient (Conscious Iterative Structuralism – C.I.S.): Studiu de fundamentare teoretică şi dosar de cercetare şi demonstraţie vizuală* [Unpublished foundational dossier]. GAT Transilvania Films.
Popescu, M. V. (n.d.). *C.I.S. (Conscious Iterative Structuralism): Presentation note, research version* [Unpublished document].
Prigogine, I., & Stengers, I. (1984). *Order out of chaos: Man's new dialogue with nature*. Bantam Books.
Thompson, D. W. (1917). *On growth and form*. Cambridge University Press.
Waddington, C. H. (1957). *The strategy of the genes*. Allen & Unwin.