

Sickbed Nightmare

Starting Point: A Personal Experience

I am currently working on a thesis about the relationship between dreams and generative AI in art, particularly in the context of New Media Art. Therefore, I see this essay as an opportunity to conduct complementary research and develop an experimental artwork related to my broader thesis topic.

The idea began with a personal experience I have had when I am ill with a fever. During these periods, I sometimes have unusual, almost hallucination-like nightmares. I remember seeing black-and-white geometric patterns moving in highly repetitive and symmetrical ways.

Later, I encountered discussions on social media and online forums in which other people described surprisingly similar experiences during fever. This made me wonder whether my experience could be related to broader phenomena involving dreams, hallucinations, visual perception, and geometric pattern formation.

1. Do Other People Have Similar Experiences?

An online discussion titled *Geometric Night Terrors @ Fever Dreams* contains descriptions of geometric shapes, seemingly infinite spaces, repetitive motion, changes in scale, and intense sensations of vibration or sound experienced during fever (The Cusp, 2006).

Similar descriptions can also be found on Reddit, where users have described experiences such as endless geometric shapes, moving stripes and patterns, or geometric objects continuously changing between extremely large and extremely small scales (NameChecks_Out_, 2021).

These are important as a starting point for my research because they suggested that my experience is not necessarily unique.

This led me to ask a more specific question: has this kind of geometric imagery been studied scientifically?

2. Research on Fever Dreams

In *Fever Dreams: An Online Study*, Schredl & Erlacher (2020) collected data from 164 participants, including 100 fever-dream reports. They found that fever dreams tended to be more bizarre and more negatively toned than ordinary dreams and contained more references to health and temperature perception.

However, the study does not specifically address geometric imagery in fever dreams. This led me to look at research on geometric visual hallucinations.

3. Geometric Visual Hallucinations and Form Constants

Psychologist Heinrich Klüver (1926, 1928) introduced the concept of form constants while studying recurring visual patterns reported during mescaline-induced altered states. In his research Klüver observed that despite considerable differences between individual experiences, certain geometric structures appeared repeatedly.

He classified these recurring visual forms into several main categories, including:

- gratings, lattices, honeycombs, and checkerboard-like patterns
- cobweb-like structures
- tunnels, funnels, and cone-like forms
- spirals

These visual forms strongly resemble some of the visual qualities that I remember.

The question then becomes: why do similar geometric structures appear repeatedly in altered states of visual perception?

Bressloff et al.'s (2001) suggest that recurring geometric hallucinations may be related to the organization of the primary visual cortex. Their model connects visual-cortex activity with Euclidean symmetries such as translation, rotation, and reflection, which can produce patterns resembling Klüver's form constants.

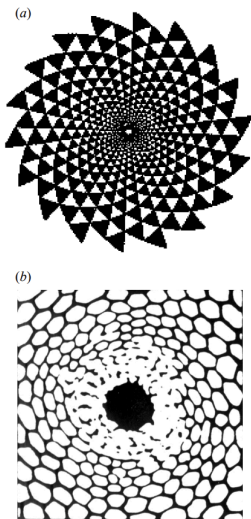


Figure 1. (a) 'Phosphene' produced by deep binocular pressure on the eyeballs. Redrawn from Tyler (1978). (b) Honeycomb hallucination generated by marijuana. Redrawn from Clottes & Lewis-Williams (1998).

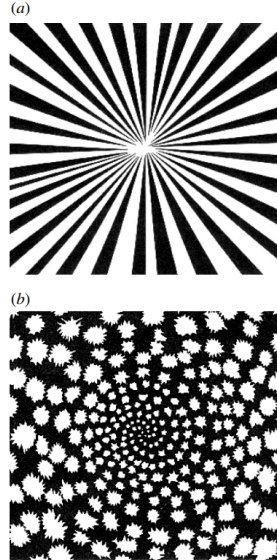


Figure 3. (a) Funnel and (b) spiral tunnel hallucinations generated by LSD. Redrawn from Siegel (1977).

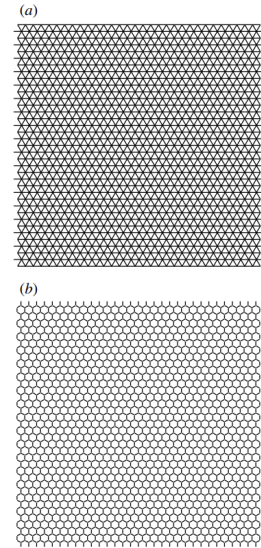


Figure 25. Contours of even axial eigenfunctions on the hexagonal lattice: (a) π -hexagonal, (b) 0-hexagonal.

This idea became the starting point for my artwork. I use it as a conceptual and visual reference.

4. Artistic Approach

Alongside the written research, I developed an interactive web-based artwork inspired by these geometric experiences.

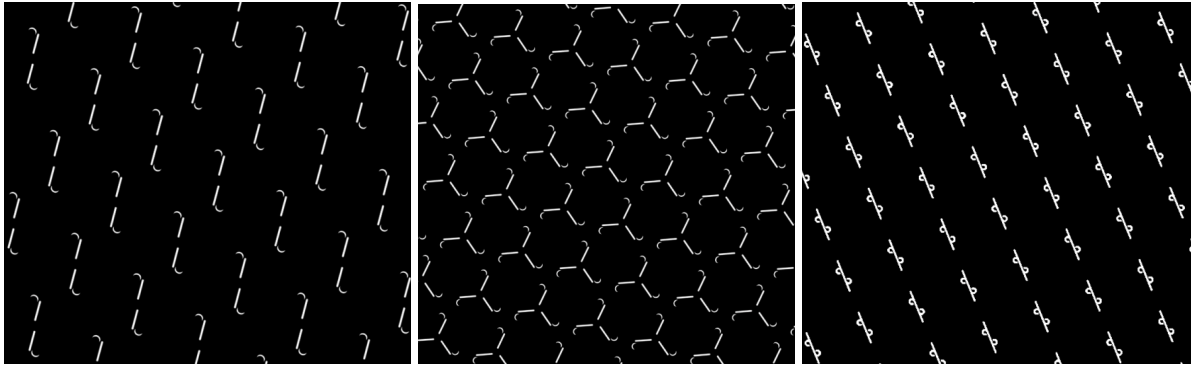
I was interested in the simplicity of interaction found in the web works of Rafael Rozendaal, where basic actions such as clicking, dragging, or moving the mouse can transform the visual.

Rather than just reproducing exactly the same as my fever dream, I wanted to take references of motifs and arrangements explored during the course *Shapes in Action*, while also taking visual references from research.

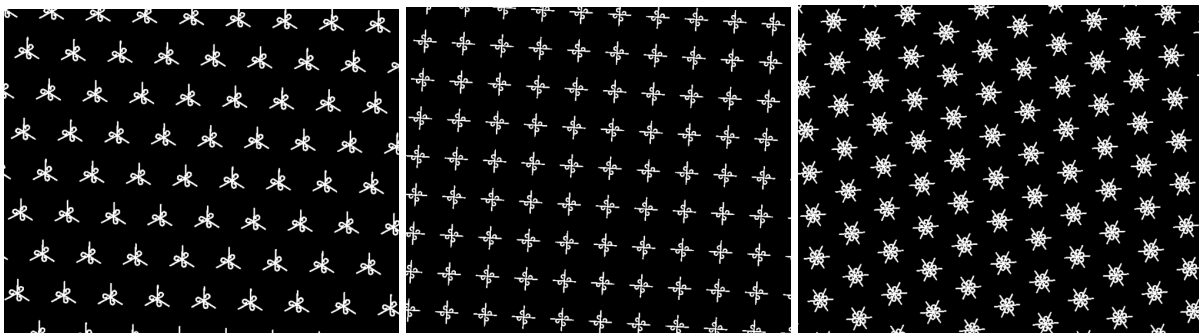
I developed the prototype through a form of “vibe coding,” using generative AI as a coding assistant.

5. Developing the Visual Patterns

My first experiments began with a very simple repeating motif. However, I found the initial result too visually predictable and decorative, so I gradually modified the basic form into a more complex motif.

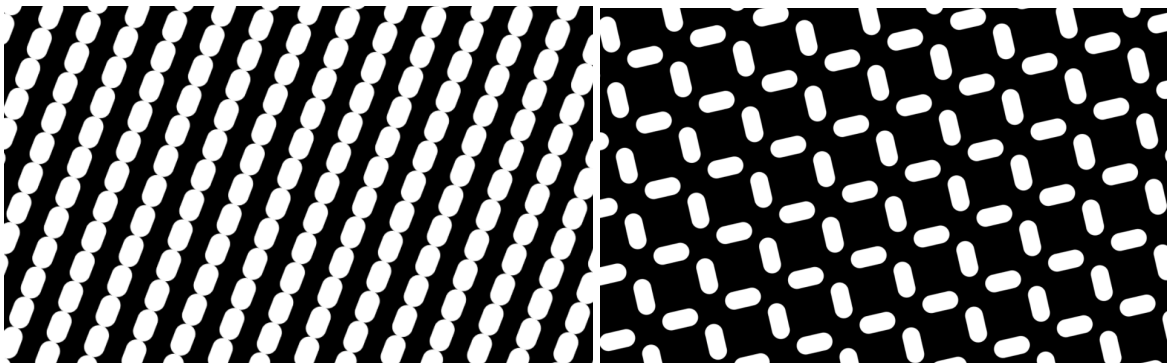


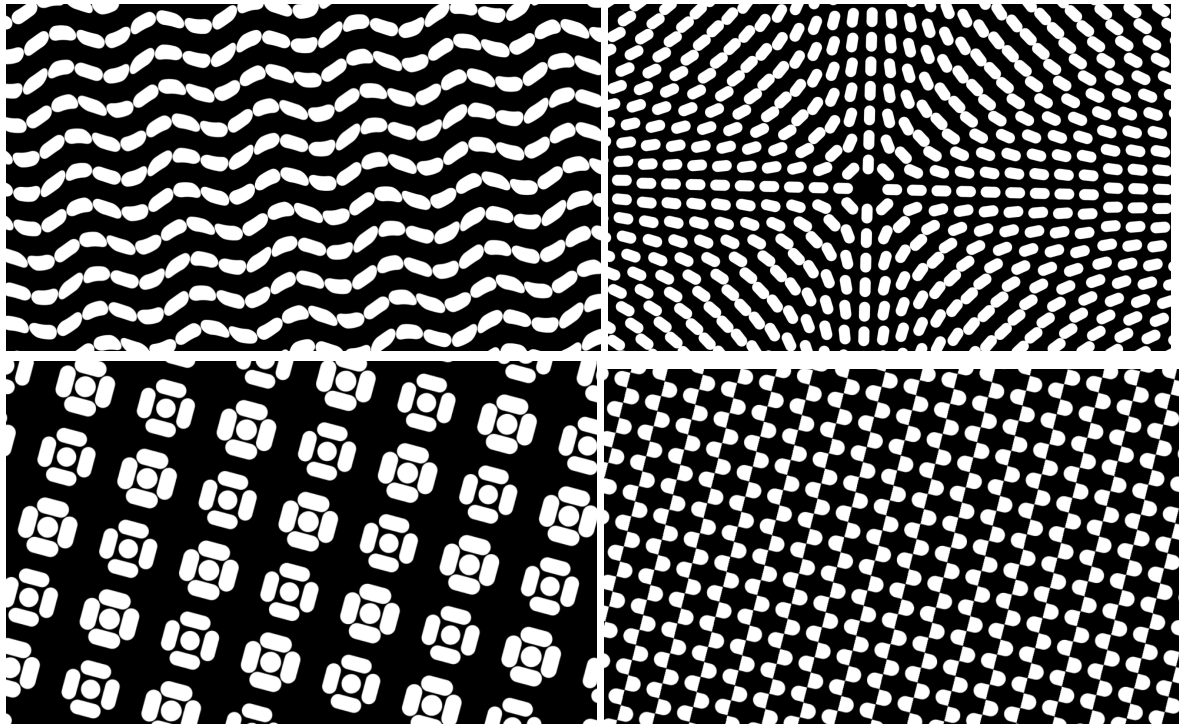
I then experimented with repeating the same motif through different symmetrical arrangements.



I then created another family of patterns using a capsule-like motif.

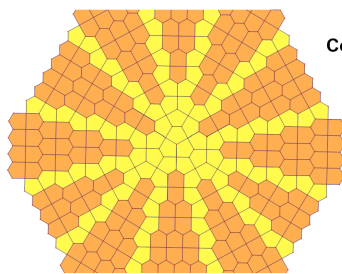
For these experiments, I got inspired by the pattern-making workshop from the course *Shapes in Action* and explored different ways of organizing a repeated unit. I tested linear, cross-shaped, wave-like, circular, modular, and diagonal arrangements.



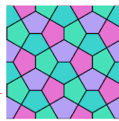


I also got inspired by a non-periodic pentagonal tiling associated with Marjorie Rice that had previously been introduced during the course. Based on this visual principle, I experimented with constructing a spiral-like pattern using combinations of pentagonal forms.

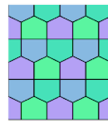
Marjorie Rice non-periodic tiling (70')



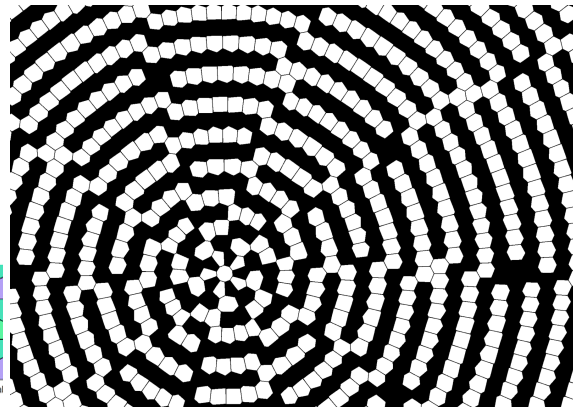
Combination of two pentagons



Cairo Pentagonal Tiling



Prismatic Pentagonal Tiling



The spiral patterns were especially relevant because it is also one of Klüver's form constants. However, rather than reproducing Klüver's spiral directly, I approached it through a geometric system that I had already encountered during the course.

6. Introducing Movement and Interaction

The final step was to introduce movement.

I animated the patterns so that they continuously shift, rotate, tilt, and subtly pulse with different timing.

I also added an interaction that changes the scale of the pattern according to the mouse movement. Moving upward and downward produces a zooming effect. This effect came much closer to my memory of the fever dream than the static images did.

The artwork attempts to reproduce some of the formal characteristics that I associate with that experience: repetitive geometry, unstable scale, optical movement, symmetry, and visual intensity.

7. Artistic Outcome

Sickbed Nightmare is an interactive web-based artwork. The work is based on my memory of unusual nightmares that I sometimes experience when I am ill. I focused on recurring visual qualities that I remember: black-and-white forms, repetition, symmetry, continuous movement, expansion and contraction, and changes of scale.

I developed a series of repeating patterns using motifs and arrangements explored during the course, while also taking visual references from research on geometric visual hallucinations. Through interaction, the viewer can experience a fragment of the visual and perceptual sensation I remember from these nightmares.

Project links:

GitHub repository: <https://github.com/yongval/nightmare>

Interactive artwork: <https://yongval.github.io/nightmare/>

8. References

Bressloff, P. C., Cowan, J. D., Golubitsky, M., Thomas, P. J., & Wiener, M. C. (2001). Geometric visual hallucinations, Euclidean symmetry and the functional architecture of striate cortex. *Philosophical Transactions of the Royal Society of London. Series B: Biological Sciences*, 356(1407), 299–330.

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https://www.reddit.com/r/fastfeeling/comments/ndhqwd/geometric_fever_dreams_anyone/

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The Cusp. (2006, November 13). Geometric night terrors @ fever dreams [Online forum thread]. Dreamviews.

<https://www.dreamviews.com/nightmares-recurring-dreams/29794-geometric-night-terrors-%40-fever-dreams-print.html>