Mathematical Art and Hyperformalism

Artforms that Feel at Home in Virtual Reality

by Rose Krasner

Seifert Surface calls his work Mathematical Art, DanCoyote Antonelli calles his Hyperformalism, but whatever you call it, sculptors are creating works in Second Life that could not exist in the real world.

Bathsheba Dorn and Seifert base their sculptures on number sequences and other mathematical algorithms. These works can be huge in scale and defy gravity, yet seem normal in a world where almost anything can happen. Perhaps it's the reassuring familiarity of form that comes from basing artwork on a system that underlies the building blocks of nature.

DanCoyote builds large scale architectonic environments, massive light sculptures, and choreographs avatars who wear giant costumes for performances of his ZeroG Skydancers, with music he commissions from composers in Second Life.
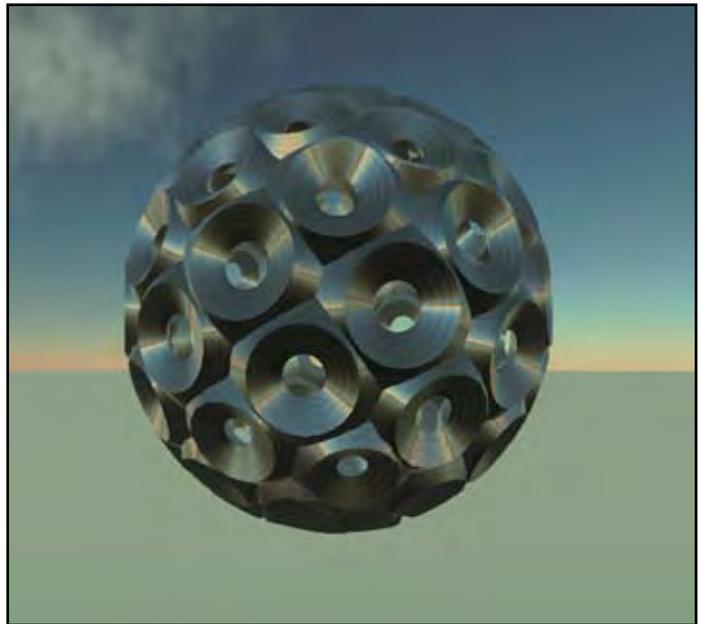
At the NMConnect exhibition in February, 2007, Seifert Surface exhibited a huge airborne mathematical artwork titled *Spore*.

Where's ArtWorld? Inside the huge airborne sculpture (in a blue suit), below, center). This gives a sense of the scale.
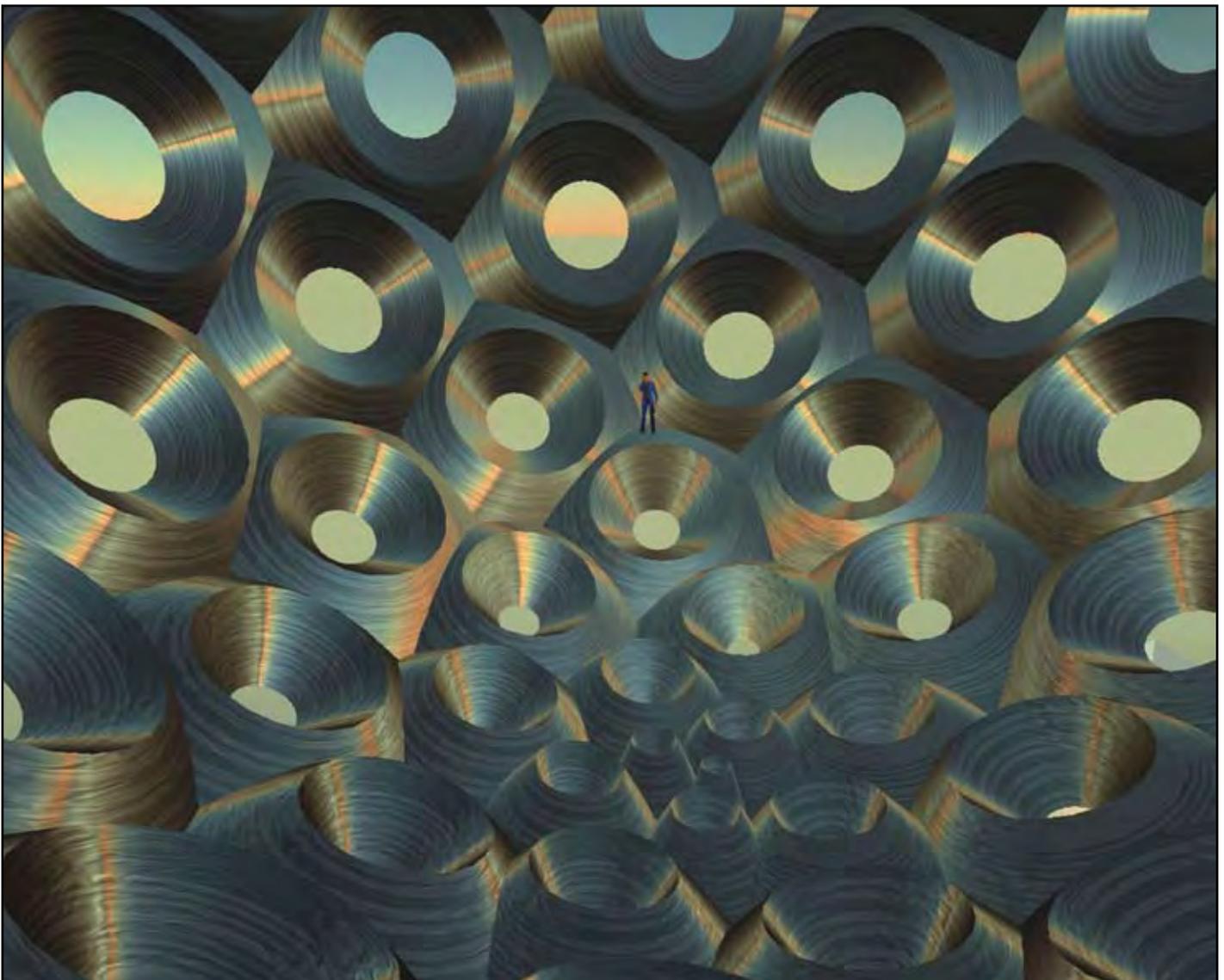
A Chat With
Seifert Surface

May 18, 2007

ArtWorld: You are seminal.

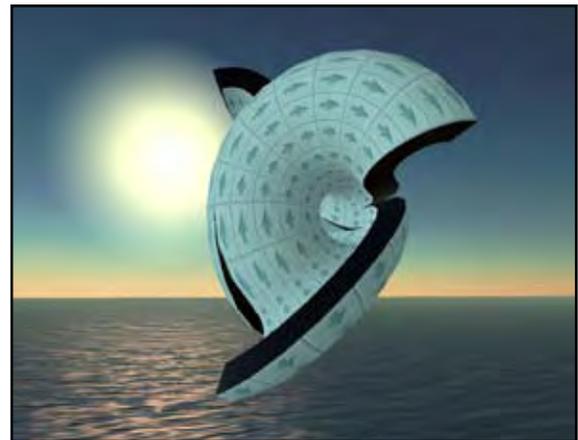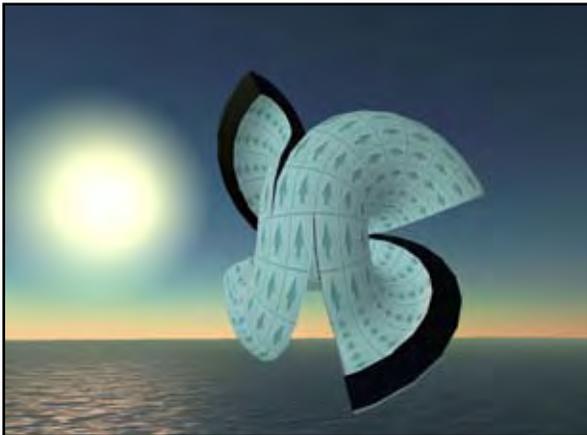**SS:** Well, seminal? Are other people doing stuff inspired by me?

ArtWorld: Yes.

SS: Maybe, the morphing sculptures by Sasun were, I heard.

ArtWorld: And Bathsheba used some script from you.

SS: She has plenty of RL stuff to draw on too.

ArtWorld: And DC says you are fundamental, so I accept what these three artists say.

It's somewhat more freeform than the previous media I've worked in, so I have to impose enough rules to make it restricted enough. I have a lot of trouble making decisions on things that don't have a good restriction associated with them. Does that make sense?

ArtWorld: Yes.

SS: I like pure geometry, no textures (or just shiny) when possible. sometimes it isn't, because of the way shiny is implemented, and a texture is necessary... then it gets hard :)

This guy is a really recent example. Putting shiny on it doesn't work so well, there are seams. It's not really the graphics engine's fault that it doesn't work, its actually a hard problem. The shiny highlights don't know where you want the surface to go next, so it can't get things to line up properly. So... I had to make a texture for it instead. The sculpture was inspired by the symmetry between the inside and the outside of a torus inside of the three dimensional sphere.

Above: Two views of Seifert's *Split Torus*

I have a lot of trouble deciding on things that don't have a good restriction associated with them.

SS: Well, I can tell you my SL story: I arrived in June 05. I'm a math graduate student at Stanford in RL, about to graduate actually. I'm off to the university of Texas at Austin for a postdoc, my research is in 3 dimensional geometry and topology. I've also been interested in mathematical art from before SL: if you visit my website there are some examples. Anyway, so I arrived in SL, and being into 3d visualization and math art and so on, I set to trying to make knots pretty much straight away, and generally bring mathematical ideas into sl through sculpture or scripting.

One of the things I've recognized about what I like doing creatively is working in restricted domains. It changes the creative process into a puzzle solving process. A number of years ago I was into ASCII art, then later ambigrams, and then these "autologlyph" things (see my website). In SL often its the same thing: how can I make that kind of shape using these prims.

SS: I use a lot of math in working things out—I'm very big on precision, and the technical background certainly helps with making things work how they should.

ArtWorld: So where were you and doing what b4 Stanford?

SS: Undergrad, maths, Oxford.

Slart: Where were you born?
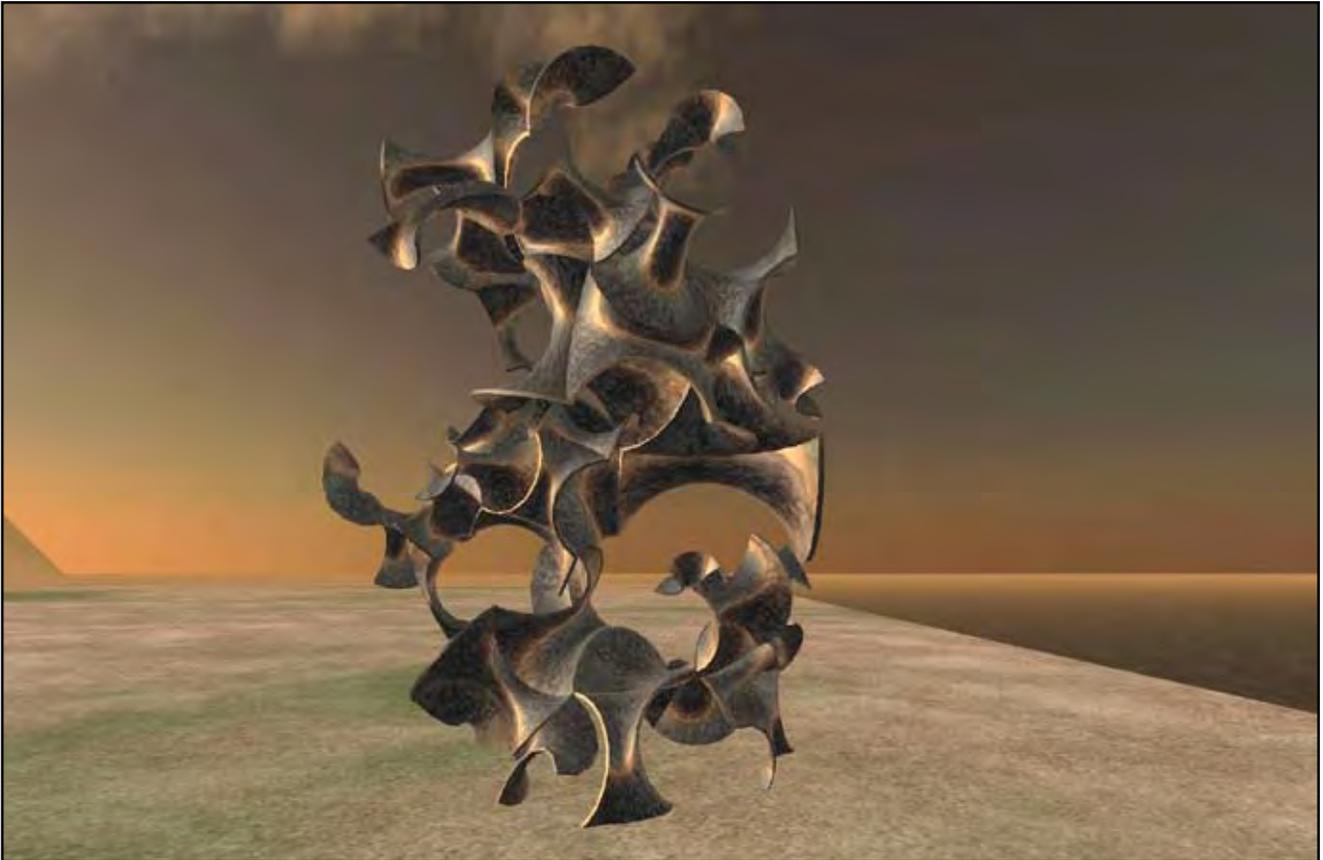
SS: Manchester, UK. I'm 27.

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SS: Nice thing about art in SL, it doesn't take much in the way of resources—no need to store things, or pay for materials.

ArtWorld: Just mental resources.

SS: Time.

Seifert is Henry Segerman: www.segerman.org

Above: *Negative Curvature Fractal 4*

I don't really have a philosophy I'm pushing—
it's just about making interesting things

Below: *Untitled, Burning Life 2005*