

1135-F1-897

**Leo S Bleicher\*** (1\_bleicher@pacbell.net), 555 Rushville St., San Diego, CA 92037. *Evolving Paintings with Sequences of Coordinate Transforms in 2D and 3D.*

Complex shapes can be generated through the application of sequences of symmetry breaking coordinate transformations. For example, a square or circle, through a series of polar coordinate transforms and rotations can become something much more interesting.

A specific sequence of transformations is a code describing a method for generating one member of a family of related shapes. Such sequences can be recombined, allowing the resultant images to ‘evolve’ with the application of suitable fitness function. Software has been developed to initialize sequences, generate renderings, evaluate output images and recombine my favorites. Over generations the sequence length, complexity and diversity of images generated in this way can tend to increase.

In 3D still more complexity and diversity can be discovered using additional coordinate systems. In this case Pipeline Pilot is used to generate renderable scene descriptions and launch the rendering engine. Sequences having transformations with continuous domains (e.g. rotations) can be rendered at many points along a vector through parameter space to yield movies. (Received September 16, 2017)