

## Chapter 3

# Art Resulting from Computing

### ABSTRACT

*This chapter examines many types of new media art that are being created with computing. Displaying art becomes a tool for exchanging information and ideas that also creates channels for the viewers' input through digital art interactive events. Biology inspired computing applied for artistic tasks has often a mutual relationship with scientific research involving evolutionary computing. Net art, along with other electronic art media, may be seen closely related to the semantic networks and social networking media. Many times these media provide computational solutions for entertainment.*

### INTRODUCTION: PROGRAMMING AND ART

Computer graphics and art may be created through writing algorithms – instructions for determining sequential steps for carrying out operations, which result in a work of art. They have been considered the solution of choice, especially before the advent of graphic software packages and applications, being a merger between a programmer and design, ready for creating computer art graphics. Changing a pre-written code is also a solution, using for example, Processing.org., HTML, Blender with Python + HTML, or by combining either augmented reality or virtual reality with actions performed by an user. There are many ways of creating art that utilize technology without writing programs. An artwork based on a photo manipulated scanned image may be drawn on a computer screen with the use of graphic or painting software. One may

also apply digital multimedia packages, videotape animated sequences of those images immersed in a computer graphics-created environment, and stimulate real time interactive communication through art. Pictures made with computer programs and scene description languages to provide three-dimensional, or animated images may be projected on a screen. Transformed image may also be brought into the visualization system or the virtual reality 3D immersive world to develop interrelationships between some media. Structures can be shared or translated between media and thus we may construct both the new forms and the meaning of these media. In this process, we combine computation and thought representation. This way, we may visualize images, forms, music, poetics, and interactive fiction. We may also make metaphors of inter-sensory synaesthetic experience in the real time interactive systems or enhance virtual communication over the web.

Figure 1, “Birdcage, Sometimes a Dome” is a sculpture made after computer program. Ro-

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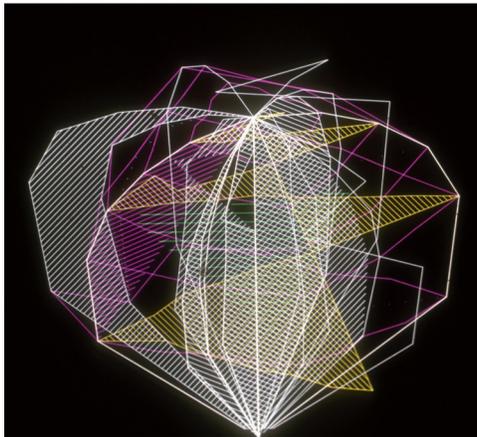
tational ellipsoid has been selected as a form of choice to assemble a three-dimensional structure. A synthetic, almost abstract appearance of this wooden sculpture may be interpreted as a framework for an architectural structure or another construction; we host our pets in forms resembling our own edifices.

Realities created with the use of programming refer to our imagination and experience that are based on physiological reality of the mind. Not only the well-trained eye of a mathematician can perceive the sense of mathematical beauty. Sculptors render appealing forms which are, sometimes even without their knowledge, perfectly fitting mathematical equations. With the use of program-

ming, artists create shapes and forms that represent the beauty of mathematics: multi-dimensional spaces, hyperbolic planes, and fractal-like repetitions. They as well produce intriguing natural forms that obey the rules of equations, such as the Nautilus shell. Mehrdad Garousi (2012, p. 28), who creates pure fractals without use of image processing software, considers fractal art a conjunction of art, mathematics, and computer technology because of simultaneous existence of order and disorder, chaos and regularity, and complexity and self-similarity.

Figure 1. a. Anna Ursyn, *Birdcage, Sometimes a Dome* (© 1988, A. Ursyn. Used with permission). b. *Maple*, after 3-D computer program outputted into a plotter. VAX mainframe, Interactive Graphic Library (IGL), FORTRAN 77

(a)



(b)



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