

T. A. Gambarotto

Kardionic

2010-11

hybrid media

project description

Overview

Kardionic (2010-11) is a hybrid media work exploring various scientific and cultural expressions of the human heart.

Views into the work include a multi-player audiovisual performance; a series of large-format, high resolution c prints; a fixed video program; and a fixed audio program.

Performance

The visual narrative of *Kardionic* begins at the macroscopic level with an examination of the four chambers of the heart. The microscopic is then explored as the viewer travels through the circulatory system. This interior view is maintained as the macroscopic returns to focus. The narrative concludes with an impression of the cosmic and spiritual dimensions of the heart—as a source of energy, emotion, and connectedness—inspired by both Eastern and Western tradition.

In performance, an ensemble of three musicians provides both the improvised soundtrack and the control data that drives the animation. One musician plays an electric bass whose sound is digitally modified; one plays a custom midi controller; one plays a set of midi mixers connected to custom drum machine software.

Kardionic has been performed at Arraymusic Studio (Toronto), Interaccess Gallery (Toronto) and at the inaugural Understanding Visual Music Conference at Concordia University (Montréal).

Print

Using a different technique from the live animation system, but employing the same underlying engine, a series of ten digital c

title page:

Four Chambers #1

2011

digital c print

106.7cm x 106.7cm (unique)

61cm x 61cm (edition of 10)

below:

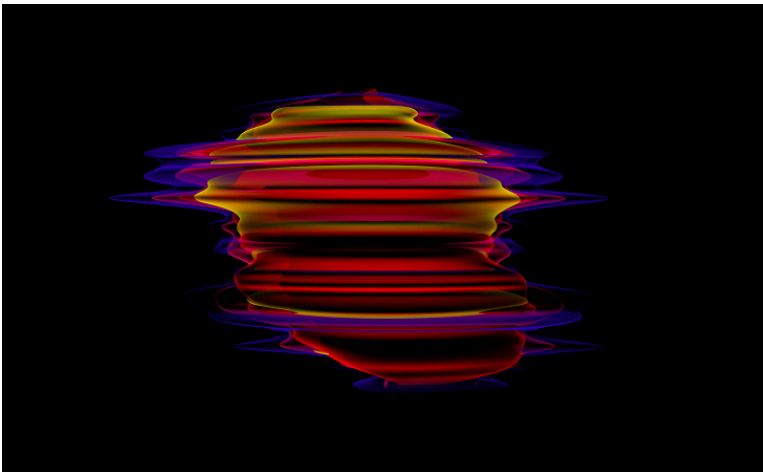
Chambers in Unity #2

2011

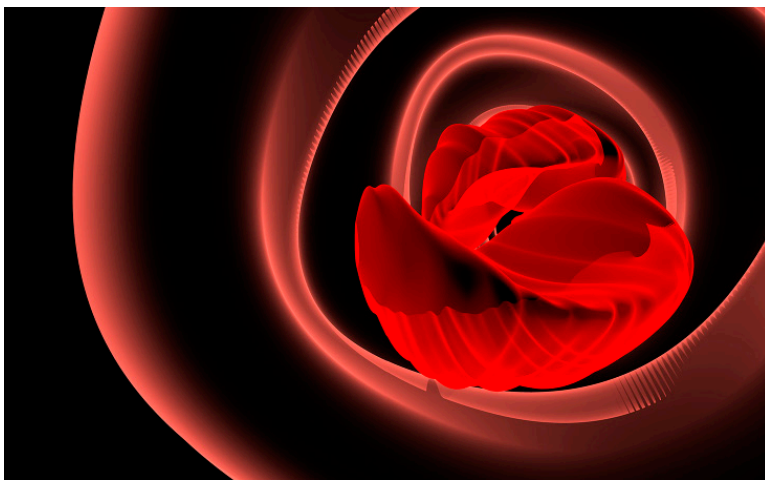
digital c print

132.1cm x 81.3cm (unique)

61cm x 37.5cm (edition of 10)



Red Corpuscles #1
2011
digital c print
132.1cm x 81.3cm (unique)
61cm x 37.5cm (edition of 10)



prints has been generated from the video stream. In resolution and scale these press at the limits of the available technology. An edition set has also been created.

Fixed Media

When funding is sourced, fixed media views of *Kardionic* will be generated. These include a fixed video release for distribution to animation festivals. A CD release is also planned.

Technology

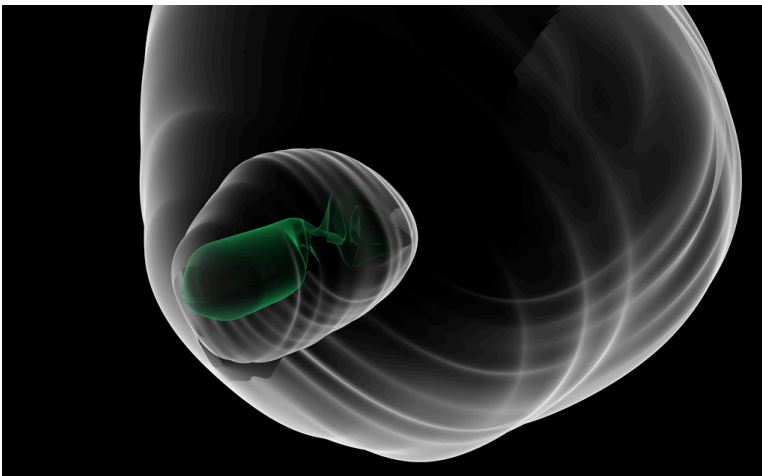
Kardionic was created on the Max/MSP/Jitter multimedia platform.

In performance, the computer animation is generated in real time. No fixed video is employed. The animation is rendered entirely using the OpenGL implementation of non-uniform rational basis splines (NURBs), a mathematical model used in computer graphics for generating and representing curved surfaces. This type of model allows for the creation of complex, organic shapes with relatively few defined control points; the graphics engine of the computer interpolates to create a smooth surface. Because the user defines only a few points of this surface as a matrix, it is open to more complex real-time manipulation; scene transitions in *Kardionic* are thus accomplished via morphing rather than hard edits. Additionally, the generated soundtrack of the animation, in its form as a linear stream of digital audio data, is added to the control points, such that they continually ripple and pulse with lifelike motion.

Like the animation, the soundtrack is synthesized in real time, with no use of sampling or prerecorded audio programming. The audio generation software employs non-linear

Phage Attack
2011

digital c print
132.1cm x 81.3cm (unique)
61cm x 37.5cm (edition of 10)



mapping of parameters such that there are numerous breaks and discontinuities in pitch and timbral information, in multiple layers. The ultimate effect is a music unrelated to any traditional harmonic system, but it is not noise. In this manner, the visual content of the piece is de-anthropomorphized. The human body becomes alien terrain.

To generate the print series, the OpenGL software renderer was deployed. This allows the generation of high-resolution images, up to over 16000 pixels per dimension, resulting in images over 800 megapixels in size.

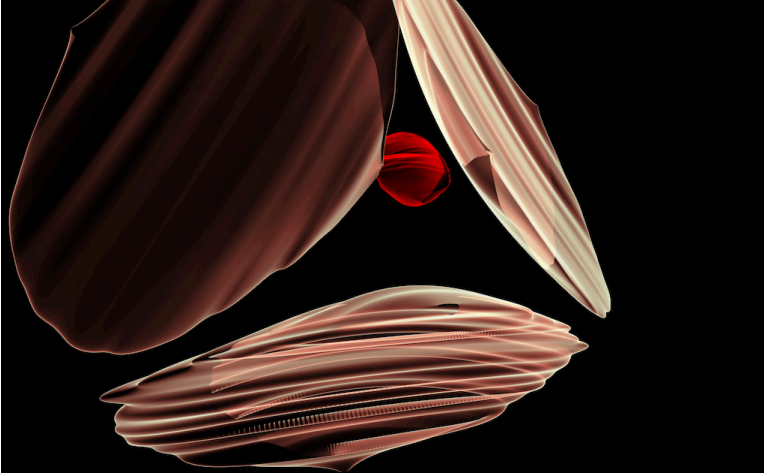
Object-oriented programming techniques were employed in the writing of the software. Max's bpatcher object allows for the reuse of interface objects. Individual patches were written once and then deployed multiply, initialized with different parameters, radically increasing the potential for sensory complexity and performance control.

The software has a set of interfaces that are used prior to performance to design the audio and visual programs. These programs are saved via database. During performance, however, the performers need not engage with the computer's screen; all performance controls are available via the hardware interfaces. The players are then able to fully immerse themselves in the audiovisual results rather than be involved with the computer, increasing the performative value for themselves and the audience.

Requirements

Kardionic may be projected at up to 1080p resolution and with stereo sound. The performance is variable in length, lasting from 15 to 30 minutes, according to the requirements of the program.

Tricuspid Valve
2011
digital c print
132.1cm x 81.3cm (unique)
61cm x 37.5cm (edition of 10)



Hardware

Laptop, Arduino microcontroller, bass guitar, custom midi interface, 2 x M-Audio X-Session Pro, 3 x foot pedal controllers, 4 x foot switch controllers, Presonus Firebox audio interface

Watch

For more information and to watch video excerpts and documentation, visit foolskool.com/kardionic

Contact

T. A. Gambarotto
rocky@foolskool.com
+1 416 703 9536

Representation

Pentimento Gallery, Toronto
pentimento.ca
