

ART, SCIENCE & DESIGN

Creative Expressionism? Conceptualism? Formalism?
Exploration? Experimentation? Time-based
Performance?? Repeatability of Installations?
Variability? Collaboration?

**Interdisciplinary New Media Artists are
scientists, designers and artists...** using
mathematics, physics, chemistry, electronics, computer
science... combined with old and new **artistic
practices...**
to produce **'Technology Art'**



INTERDISCIPLINARY IMPROVISATION Kenaxis (Max/Msp) for audio & Isadora for visuals. 50 minute improvisation on a theme. Jamie Griffiths (visuals), Noam gagnon (Dance), Stefan Smulovitz (Viola & Music), Viviane Houle (Vocals)
LIVE CAMERA with foot pedal control in Isadora. Live text. Live generation & processing of imagery & sound.

'GESTURE4'

Noam Gagnon (the Holy Body Tattoo)

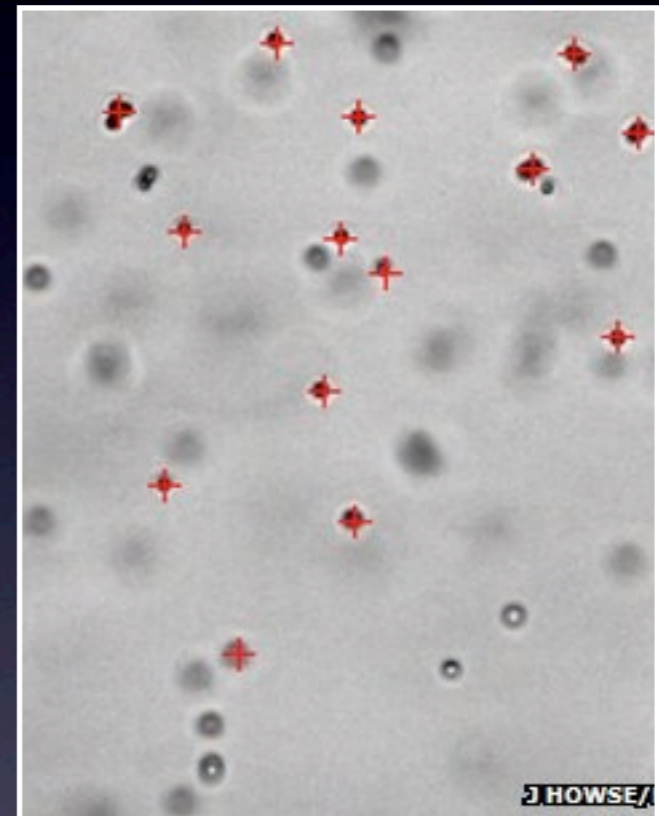
Jamie Griffiths (Primal Divine Productions)

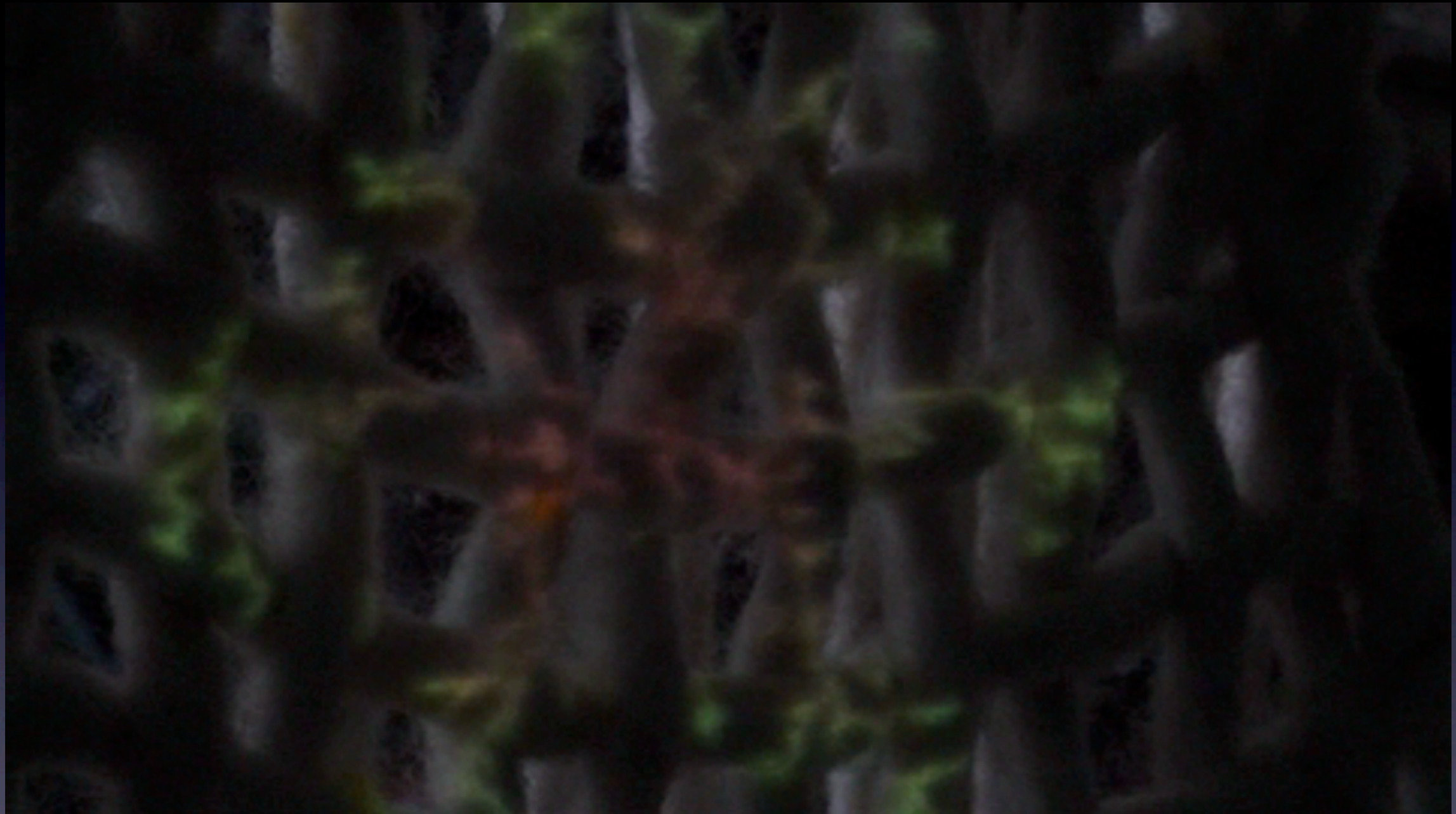
Stefan Smulovitz & Viviane Houle (Pictures in the Sky)



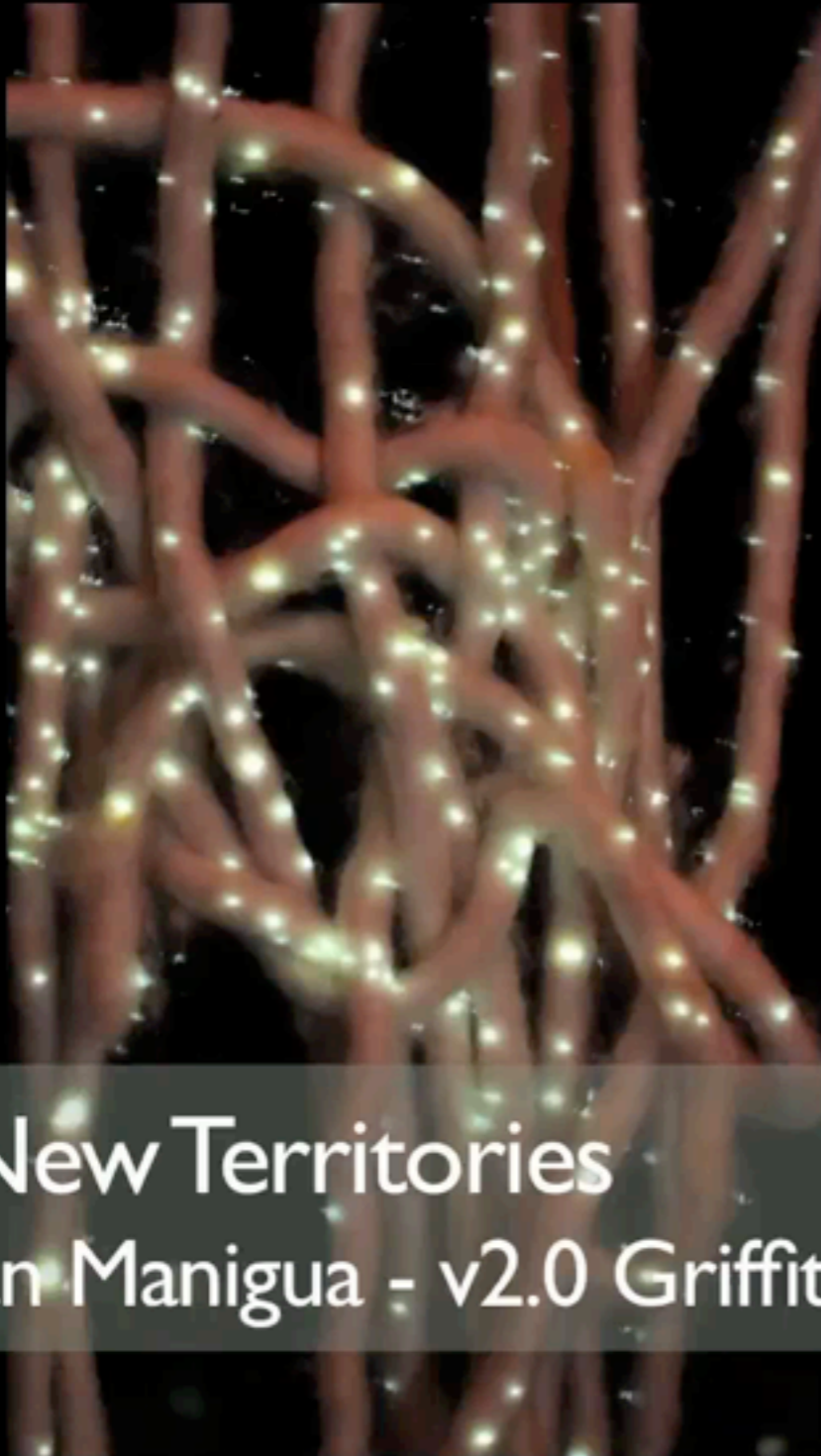
ART as SCIENCE?

- **What is Mapping?**
- Mapping sounds to Brownian Motion (the movements of microscopic moving particles)... **Is this art or science?**
- <http://www.bbc.co.uk/news/science-environment-19647038> (sound link)
- <http://www.bbc.co.uk/news/uk-wales-18882190> the sounds of plants





Live Drawing with algorithms. DLA.



Wild New Territories

La Wefan Manigua - v2.0 Griffiths/Samper/Scharein

DATA DRIVEN TECHNOLOGY ART

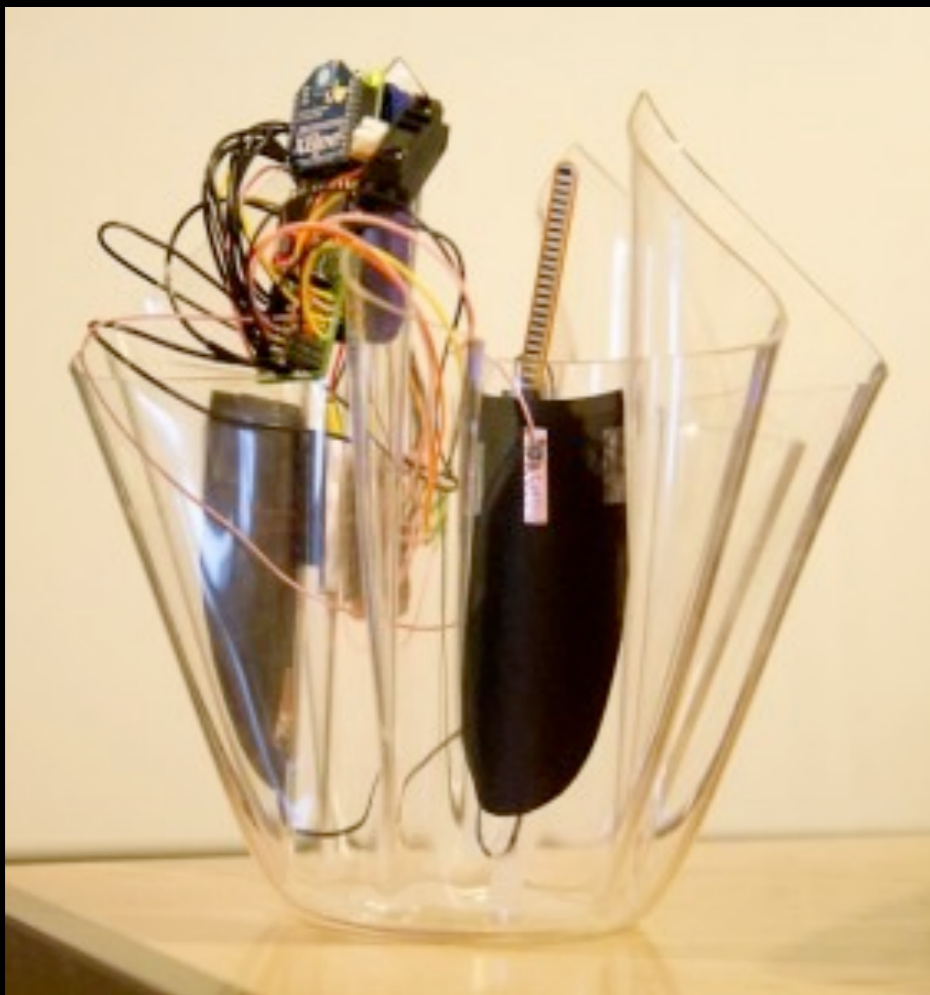
DATA lies at the heart of the art whether you use it to control digital media or collect it to analyse it for meaning and subsequent artistic expression.

http://www.guardian.co.uk/science/video/2013/jul/05/painted-numbers-mathematical-patterns-nature-video?CMP=twt_gu

http://imagination.lancs.ac.uk/articles/Data_Dimension_FutureEverything_2011

<http://www.abc.net.au/arts/stories/s3779959.htm>

Artists can talk to and receive information from multiple softwares simultaneously using custom instruments or commercially available apps.



STEIM Instrument Building



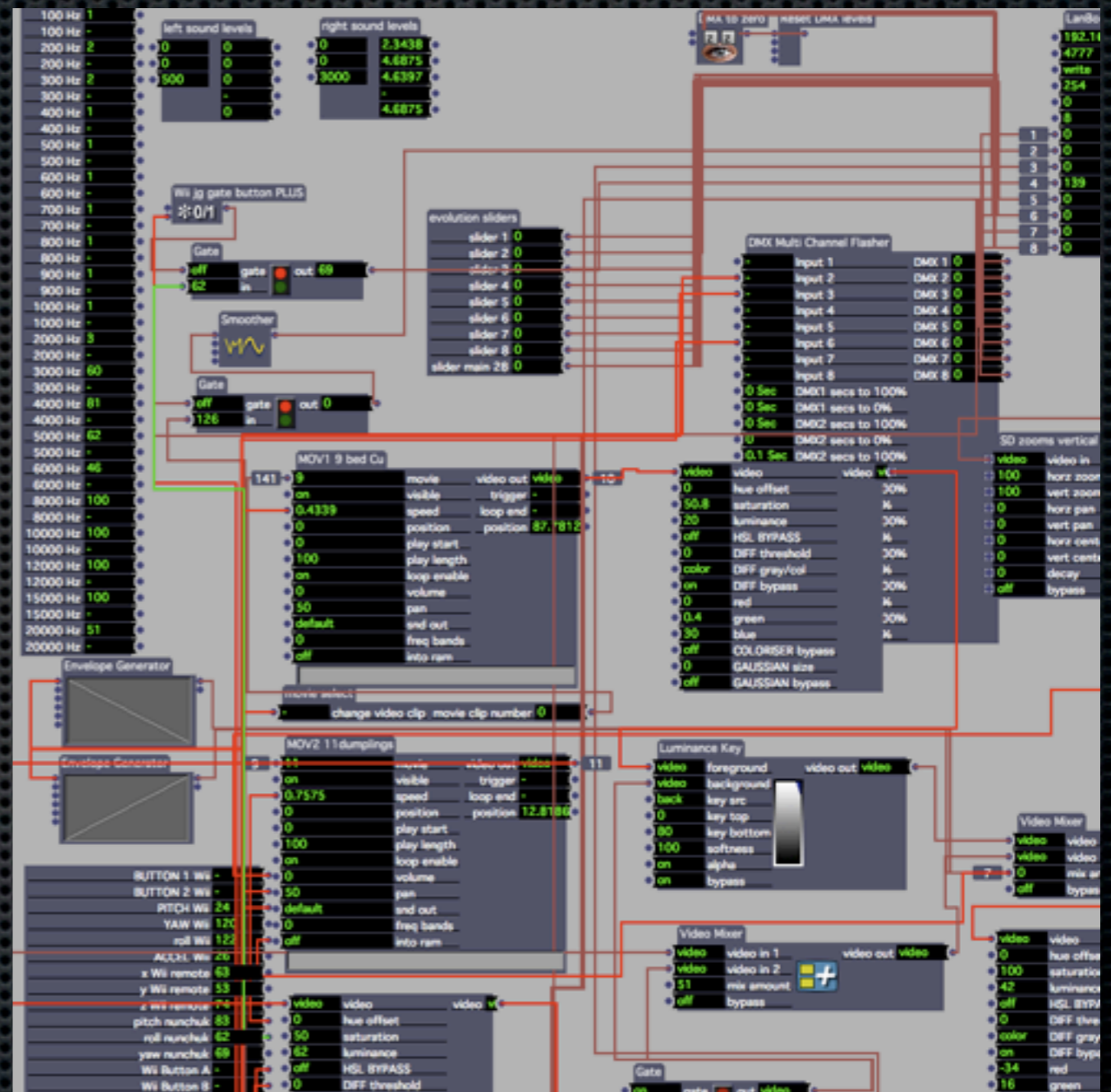
TouchOSC smartphone app

TROIKATRONIX.COM

Isadora Software by Mark Coniglio



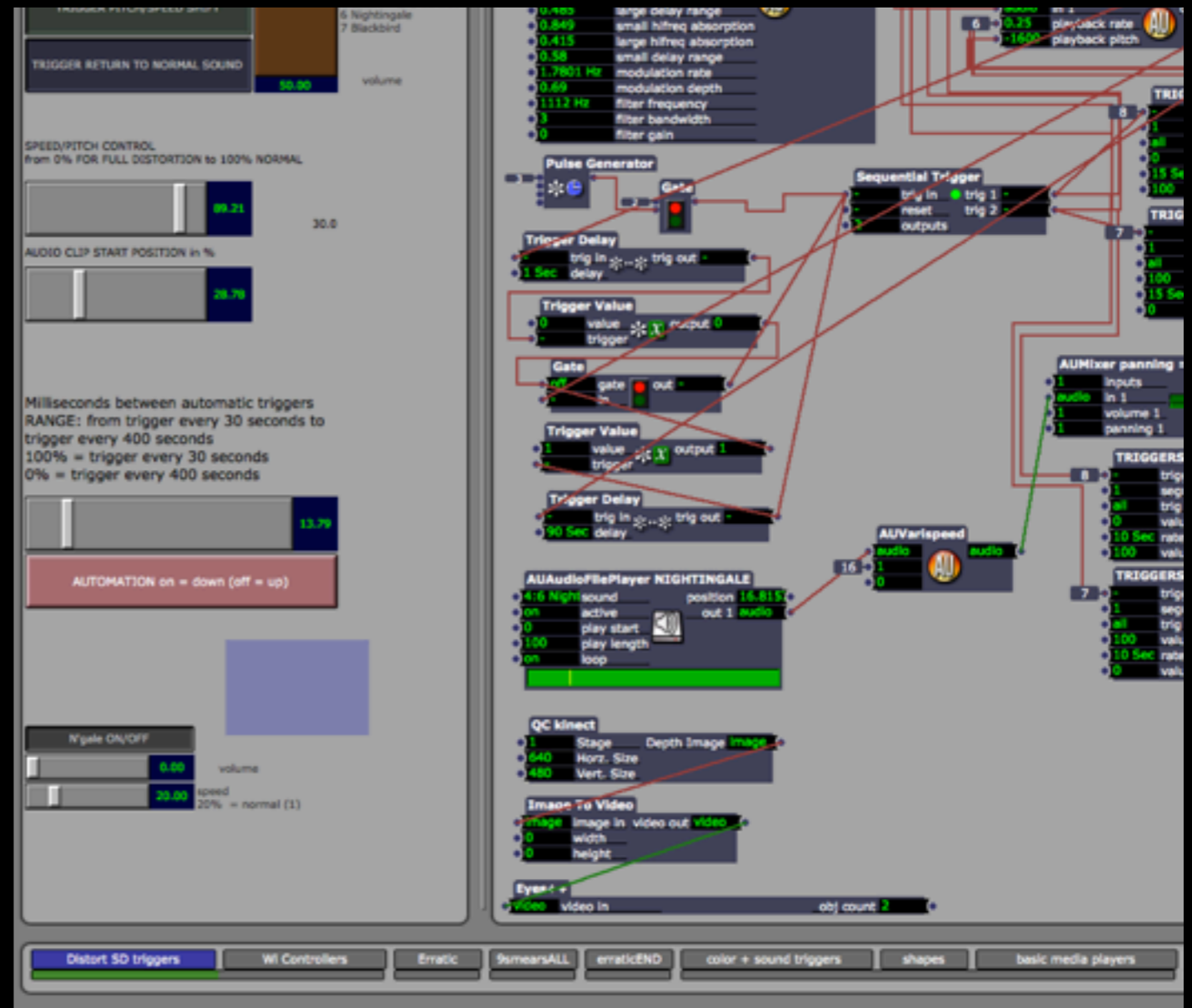
control panel mode



build/edit mode

SCENE-BASED programming, allows for linear or non-linear use.

Easy to use **CONTROL PANELS** for theatre/gallery staff or general public.



'When That I Was' CONCEPT VIDEO FOR LIVE DANCE PERFORMANCE

Nigel Charnock (DV8, Helsinki Conetemporary Dance)

Noam Gagnon (The Holy Body Tattoo)



“The live moment as the moment of truth” Joel Ryan (IRCAM & STEIM)

Software as an interface between the real world and
the imagined–designed–performed world.

**DIGITAL MEDIA ARTISTS CAN PERFORM SPONTANEITY
BUT ALTER REALITY IN THE PROCESS**

HARDWARE



Canopus (Grass Valley)

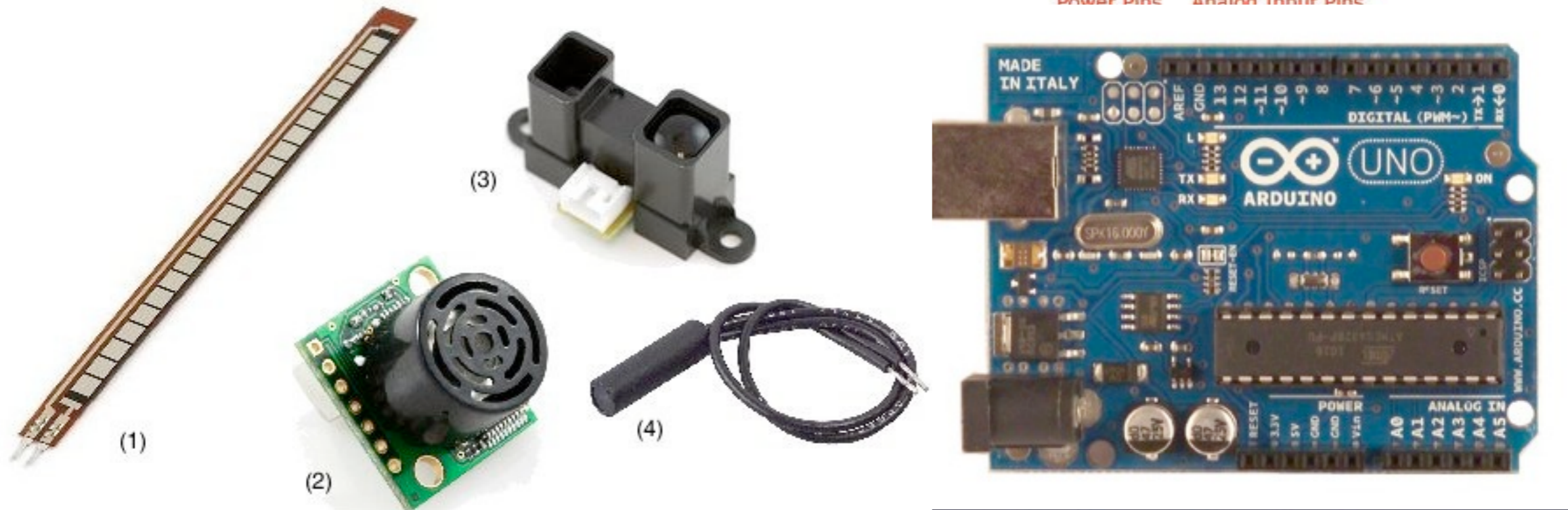
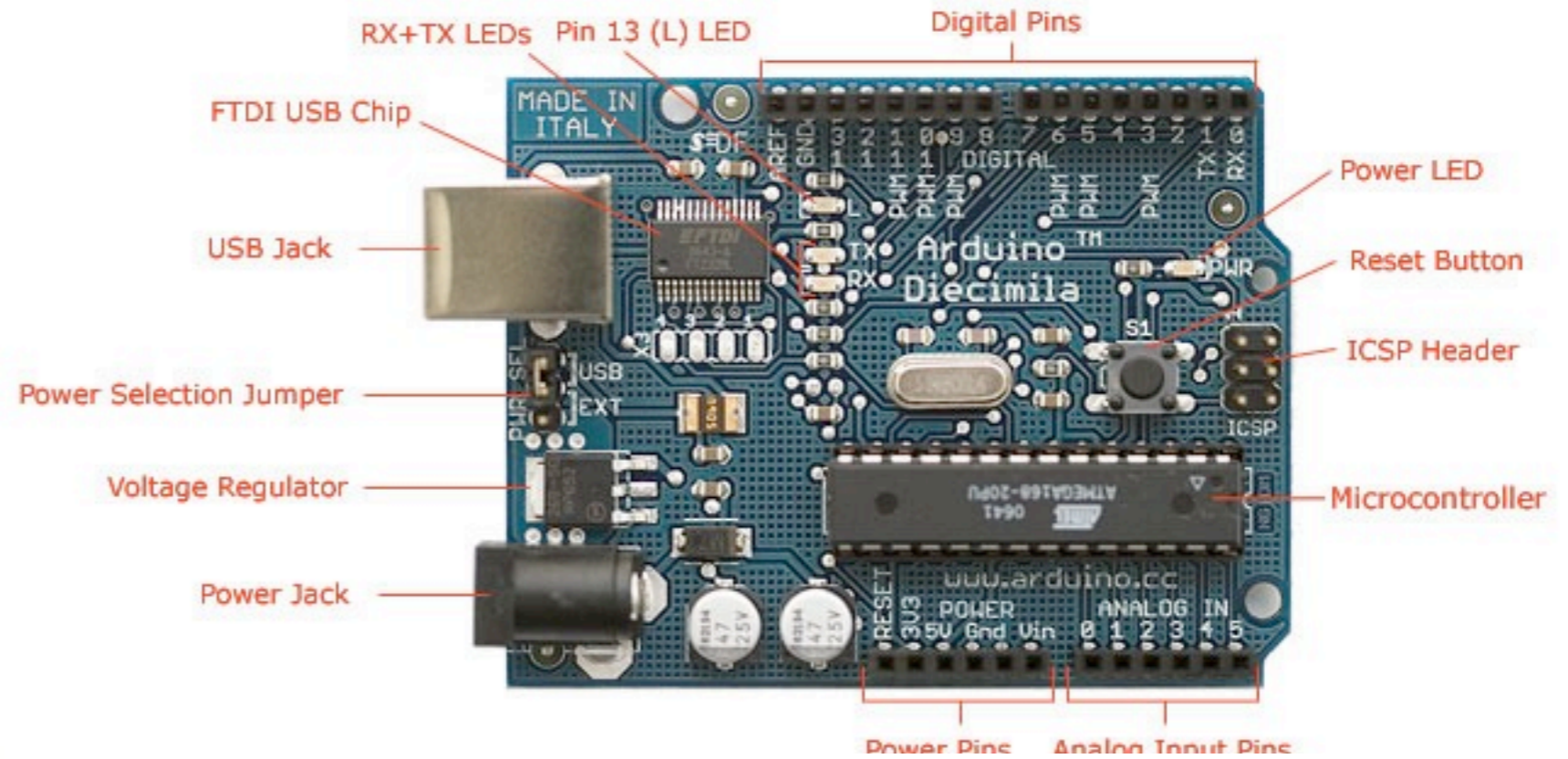


BlackMagic



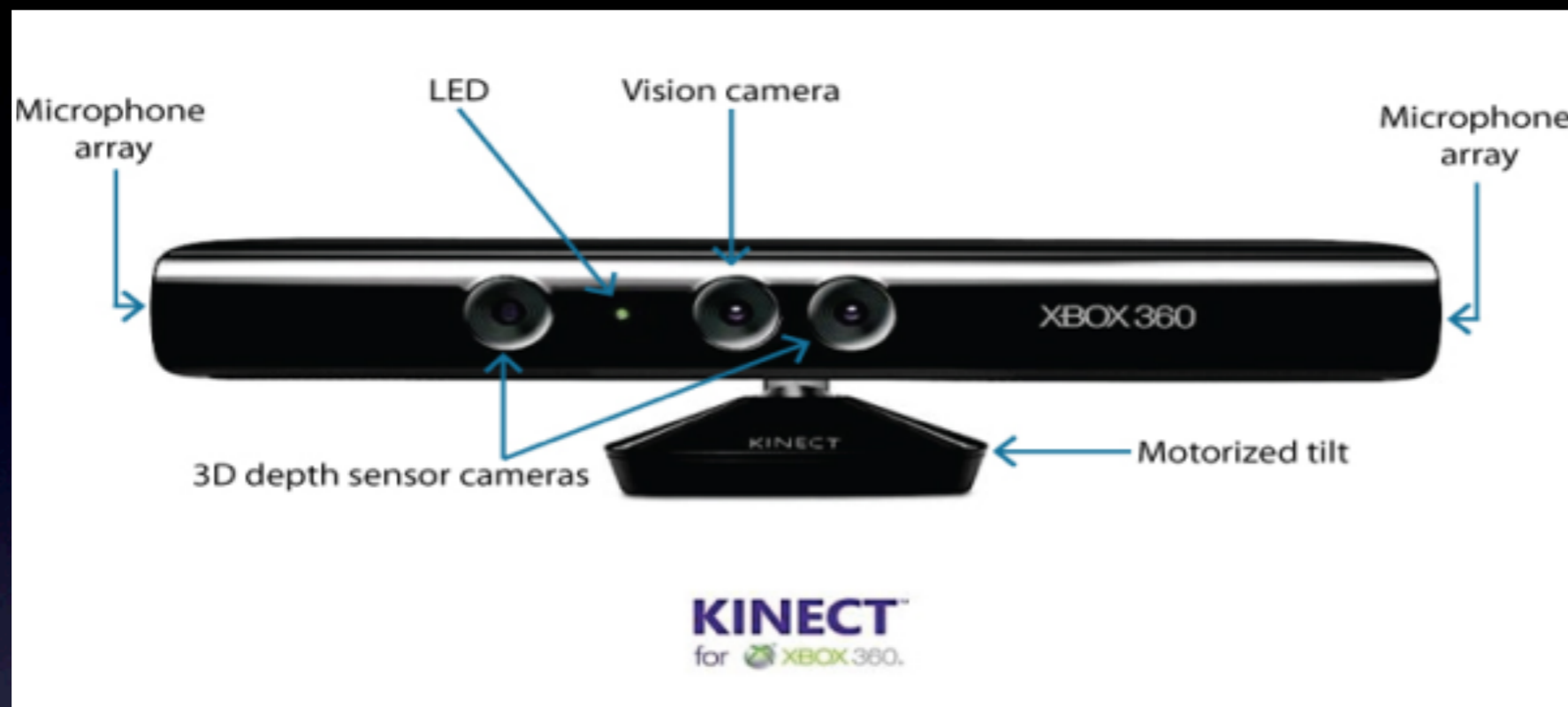
camera tracking... needs a digital camera feed

HARDWARE arduino



<http://iainmccurdy.org/sensorsworkshop/index.html>

kinect : low budget infra red, stereoscopic camera



more expensive, firewire,
proprietary software



DATA DRIVEN TECHNOLOGY ART

Mapping body sensor data to sound, video, lights

In a small, blacked out room a visitor sits alone facing a mirror and wired to on-body sensors. The low frequency sound pulses of heart, muscles and vein tissues produced by the visitor's body are captured, augmented, and fed back to the subject's sensory system as new auditive, visual, and physical stimuli. Intense surround sound, pulsating lights, and mechanical vibrations are diffused through the subject's ears, eyes, bones, and skull.

<http://marcodonnarumma.com/works/nigredo/>

DATA DRIVEN TECHNOLOGY ART



Marco Donnarumma
STEIM, Amsterdam 2013

COLLIDING WORLDS...

theatre meets interdisciplinary art
meets nightclub meets commerce...
meets the gallery, the museum

new media innovation leads EVERYWHERE all at once

**AFTER TEN YEARS OF TRYING
TO NAME WHAT I DO
NOW I AM HAPPY WITH 'ARTIST'**

images from 'GRACE': a collaborative creation with Joe Ink and Diana Burgoyne

and from 'IMMANENCE' featuring Tara Cheyenne Friedenber

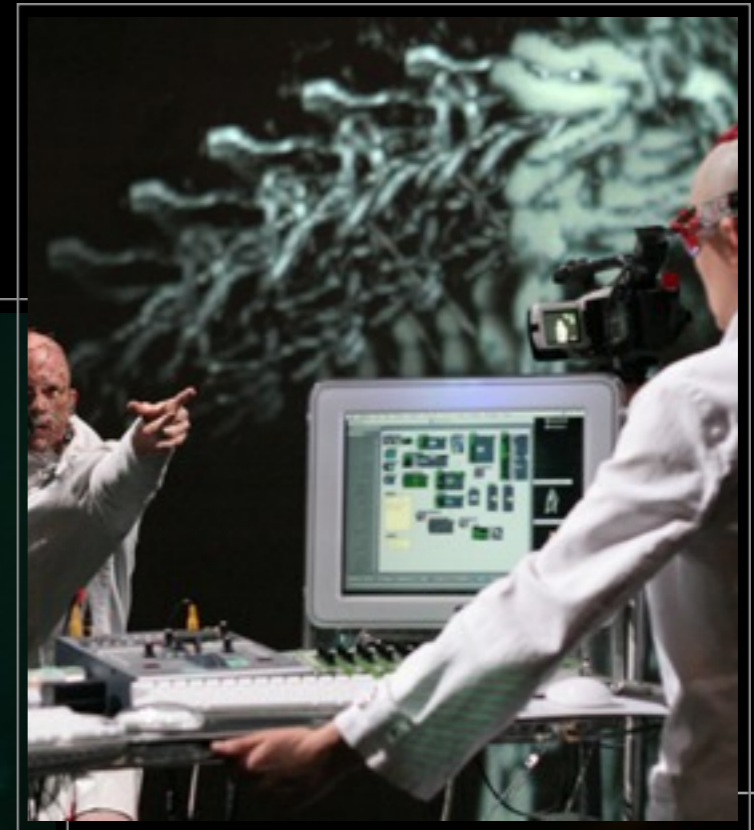
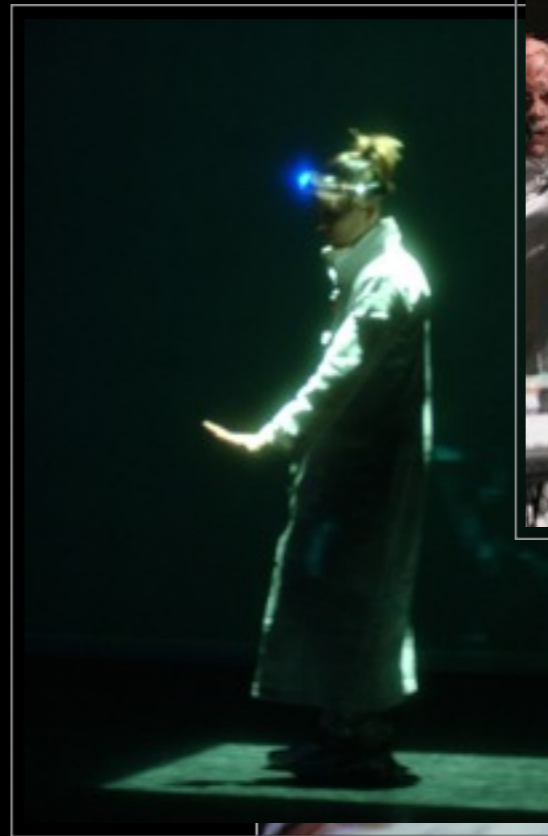
jamie griffiths

visual & new media artist, film-maker, performer

jamie@jamiegriffiths.com

www.jamiegriffiths.com

- **INTERACTION DESIGN**
 - **STAGE & PERFORMANCE ART**
 - **GALLERY INSTALLATIONS**
- **LIVE FILM & VISUAL MUSIC**
 - **MUSIC, IMPROV, ORCHESTRA**
- **RESEARCH & DEVELOPMENT**
 - **INTERACTIVE TECHNOLOGIES**



CONCEPTUAL PHOTOGRAPHY, FILM AND VIDEO

CONTEMPLATIVE OBSERVATION, DARKROOM INNOVATIONS
BRUSHES, TONERS, MULTI-TONING, BLEACHING, REFRACTION...



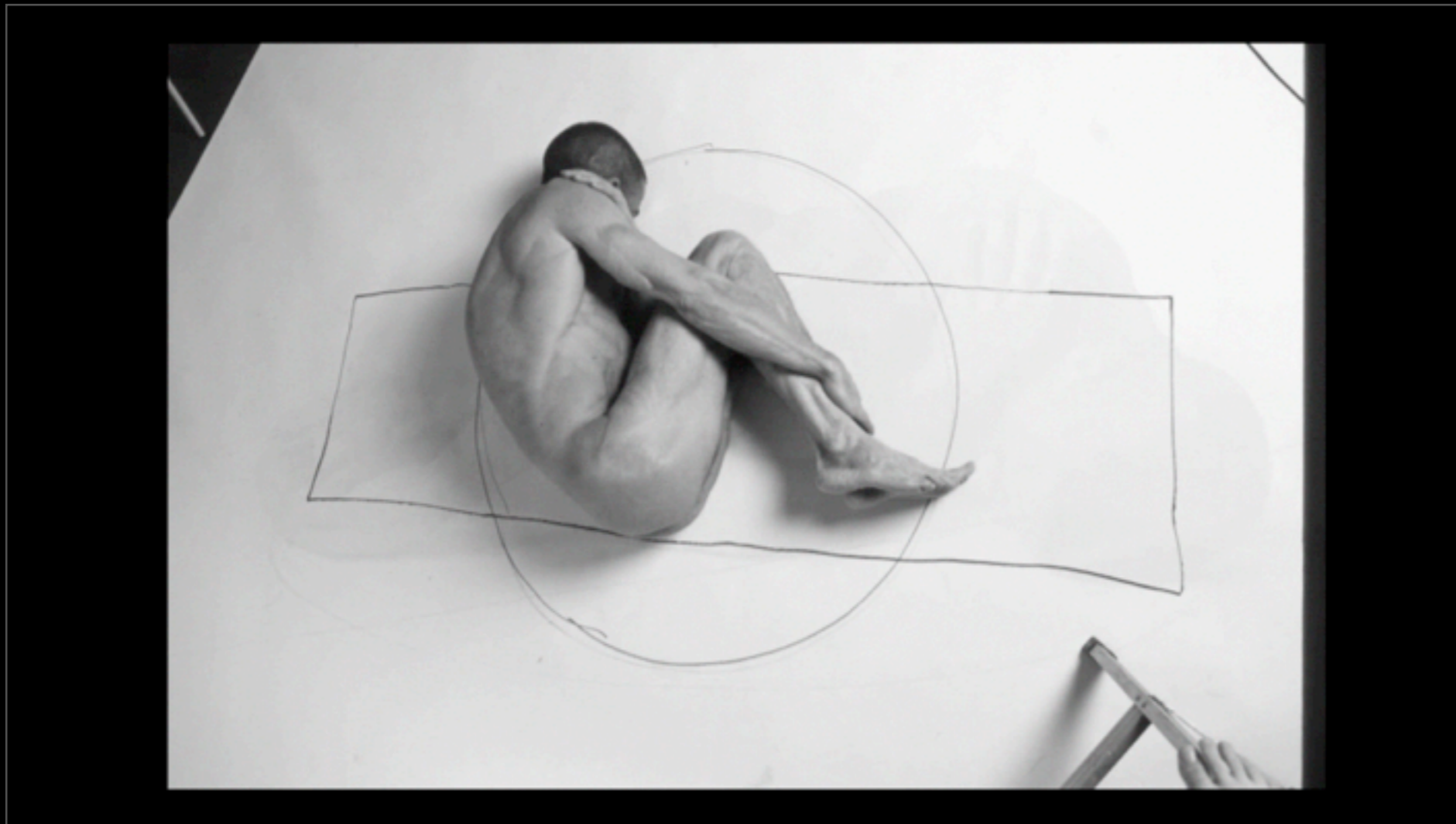
ABSTRACTED VISUAL DESIGN
Darkroom, Digital Manipulation
Abstract Visual Design Explorations

Analog and Digital image convergence.
Darkroom, Digital Manipulation



PHOTO-THERAPEUTIC ART
*Photo-Therapy Techniques in video
& photographic creative processes.*

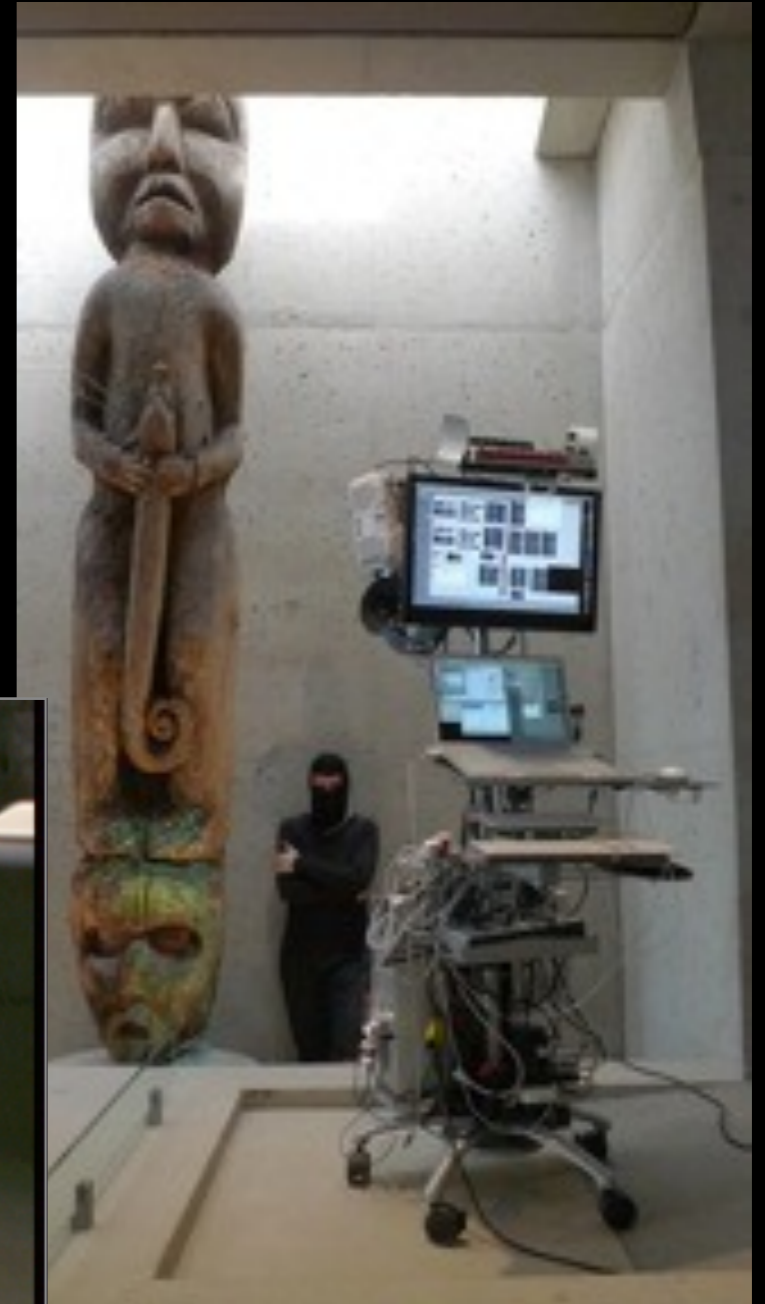
A film and photographic project exploring the emotions and artistic experience of Canadian painter, Joe Average, living with HIV and AIDS for 26 years.



<http://www.jamiegriffiths.com/therapeutic-biographies/>

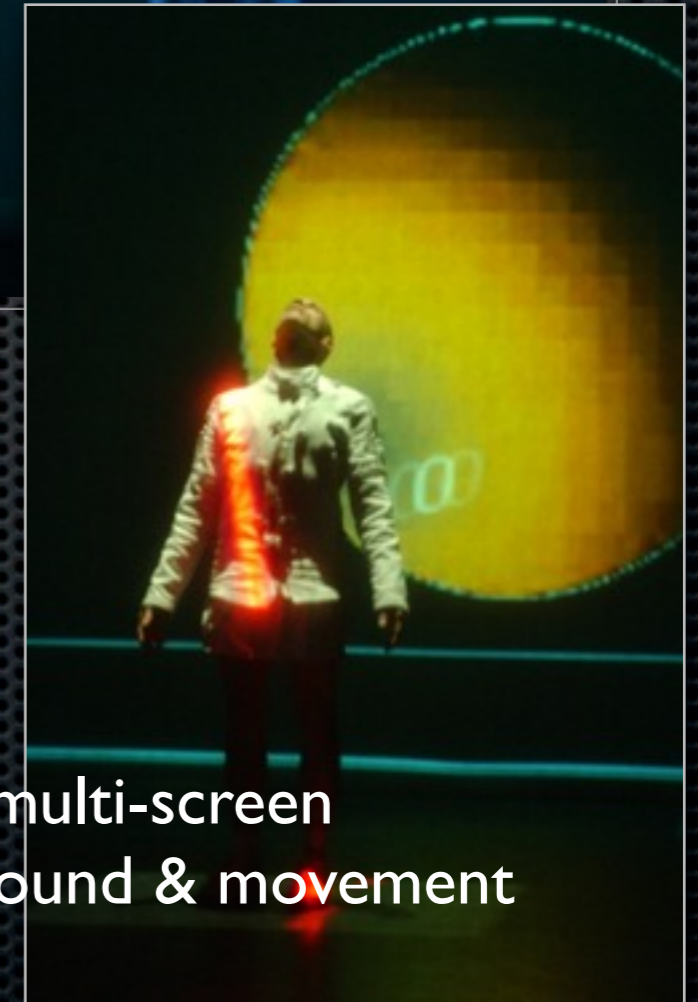
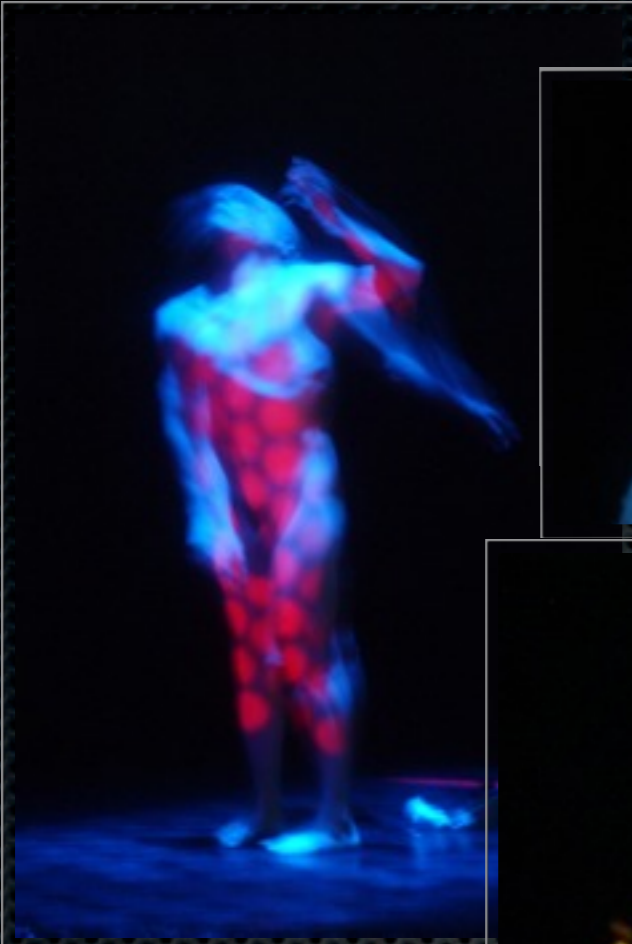
I.V.Y. and me

- 1) How long have you known me?
- 2) What did I look like when we first met?
- 3) What do I look like now?
- 4) What do you like about me?
- 5) What do you hate about me?
- 6) What do I need to do to improve myself?



Museum of Anthropology,
Vancouver 2010

images from 'GRACE' with Joe Laughlin/Joe INK



MOVING BODY generates imagery. Audience triggers. Live multi-screen projection performance with interactive visuals, responding to sound & movement

Micro-remote **WIRELESS CAMERA** system designed by jamie griffiths and worn onstage.

<http://www.joeink.ca/past-projects.htm>

'GRACE - Electro-Dance'

Joe Laughlin (Joe Ink Dance)

Jamie Griffiths (Primal Divine Productions)



COMMON

A storytelling piece, with projections and tuvan throat singers of the ***One Voice Harmonic Choir.***

Imagery derived from water around the world was driven by pitch and frequency, as well as controlled by MIDI.

Visitors entering the cathedral triggered soundscape pre-recordings of prayer and the meaning of prayer from 7 different faiths/belief systems. These were also then incorporated into the MIDI performance.

Christian (Catholic, Anglican), Muslim, Jewish, Bahai, Hindu & Atheist

Christ Church Cathedral, Vancouver, 2005



<http://www.youtube.com/primaldivine>

3D Knots & 3D Projections

Collaborations with Rob Scharein using custom software into Isadora via Syphon.

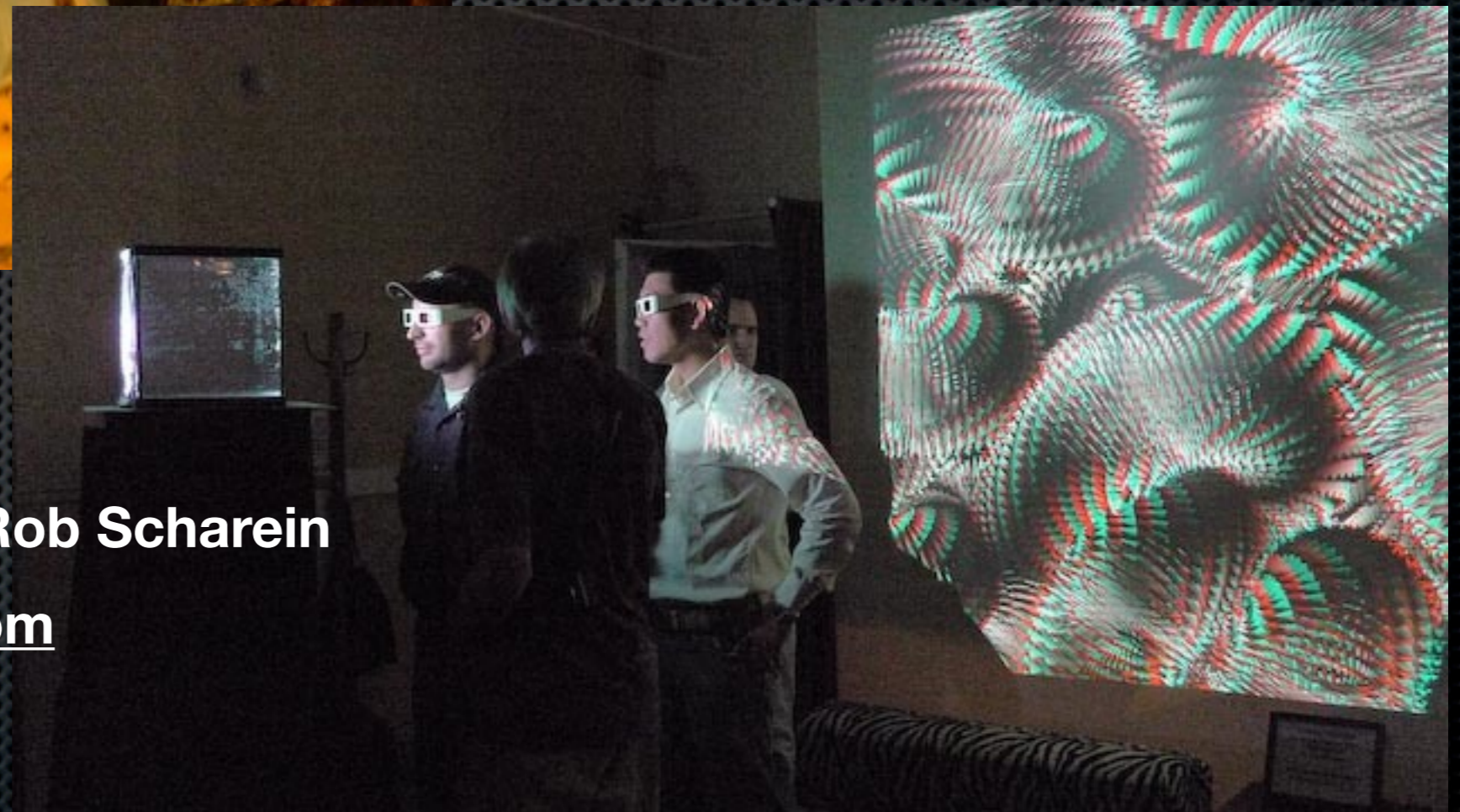
WATER TO BONE 3 knots sung into existence by vocalist Viviane Houle

THE ROAD FORWARD Live performance of First Nations visual art and film, for aboriginal vocables concert by First Nations Director Marie Clements using Circular Polarization.

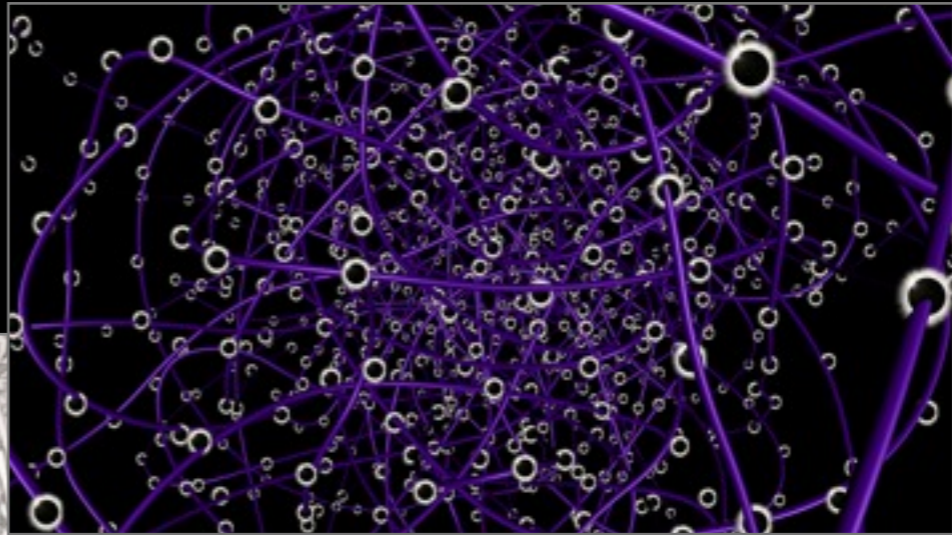


MystiQ Anaglyph stereoscopic 3D video with text & photography

Words from 800 year old Sufi poems are used in conjunction with interpretive photographs and complex mathematical knots to create a 3D tool for meditation and live performance.



- www.knotplot.com by Rob Scharein
- www.vivariumgallery.com



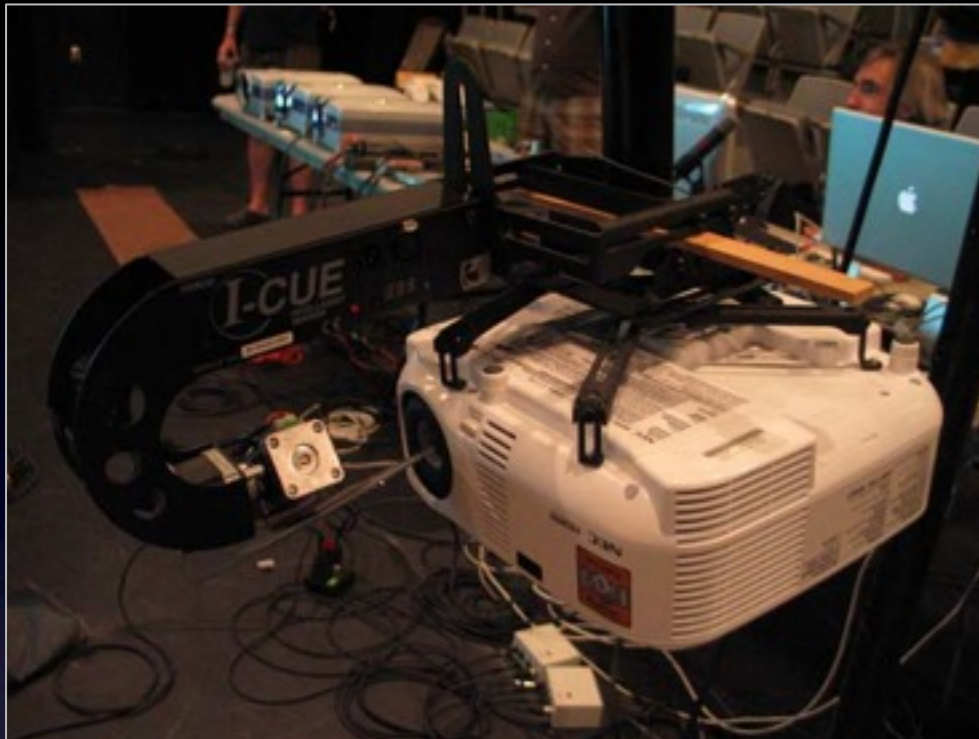
- **INTERACTIVE VIDEO SPOTLIGHT**
Designed by jamie griffiths & Jason Dubois

- Controlled with Isadora software and a Wii Controller, via a **LANBOX** and standard theatre equipment (iCue mirror)

- Video image can be moved anywhere in a 280 degree angle from the hanging position.

- **VIDEO FOLLOW-SPOT** Can be programmed to automatically follow a person or to respond to sound, music or motion.

- **AUTOMATIC KEYSTONE** adjustments calculated on-the-fly, designed by Rob Scharein



[VIDEMOTE demo on YouTube](#)

<http://www.youtube.com/primaldivine.com>

Serial Data Send and receive eg Matrix actors for DMX

Control theatre lights using DMX signal data, directly from Isadora instead of a lighting board, via attached hardware such as the Lanbox, Enttec or DMX King.



1984 (George Orwell)

- **The Virtual Stage** theatre company specialising in new technology in performance.



“Invasive technological devices, such as the all-seeing “telescreen” that Big Brother installs in every home, are central to Orwell’s cautionary tale. Our team investigated how to give the projection a sense of motion, allowing it to stalk, lurk, intimidate and oppress the characters of Winston Smith and Julia as they attempt to hide their forbidden love affair from the Thought Police of Oceania using Visual Media Designer Jamie Griffiths’ new Vid-Emote, an invention of hers that operates essentially like a moving and computer-programmable video spotlight (much like a “moving light” but with a video image). Ms. Griffiths was able to fly her image around, hitting multitudinous “marks”, and use the video projector as scenography and as a lighting instrument in rapid succession on multiple surfaces.” Andy Thompson

WAVE & SPARK

- ✦ interactive live performance for **music, water-derived imagery & 3D sacred geometry**
- ✦ Lighting driven by **flute, voice & synth-guitar**
- ✦ motion control of **video-spotlight** by the action of bowls of water ripples controlled by the performers onstage
- ✦ **3D linear polarised video projection** circular rear screen
- ✦ **Wii controllers** passed among the audience allowed them to alter with the images.



HYBRIDS

- ✦ interactive improvised **performance duet**
- ✦ Creation collaboration with **Alex Nowitz of Berlin** (opera composer & extended vocals improviser)
- ✦ **Extended vocal techniques with live Wii controller** effects using *LiSa* software by STEIM (Amsterdam)
- ✦ **Wii control of visuals** in improvised duet with vocals and vocal control of lighting using the Lanbox and Isadora

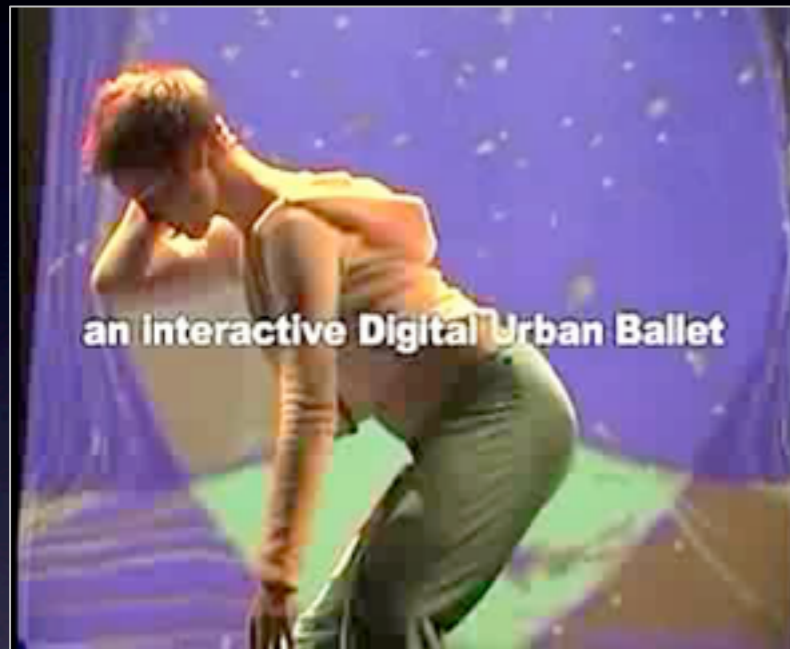
'WOLSGEHAUL' with Berlin composer, Alex Nowitz



iDUB jamie griffiths & robb lovell

interactive digital urban ballet

with mmHoP, Choreographer Martha Carter



- Multi-screen **INTERACTIVE VISUALS** generated and affected by dancers motions, and live music triggers. Multi-computer control system. **CUSTOM SOFTWARE** designs.
- **MULTI-SCREEN PROJECTIONS.** Community involvement of dancers, live audience participation.

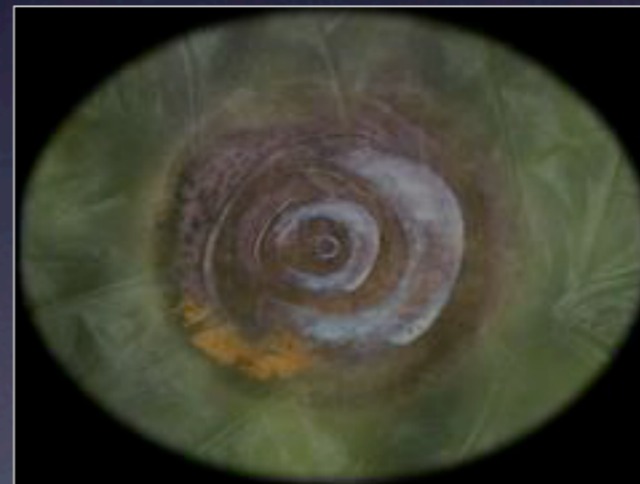


Click this link to [iDUB video on YouTube](#)

EARTH = home

Official arts and Culture festival of the
United Nations World Urban Forum
Vancouver 16-25 June 2006

- **LARGE SCALE MULTIPLE PROJECTION DESIGN** (griffiths)
- **MEDIA CONTENT CREATION** (griffiths, Samper)
- **SET DESIGN** (Samper)
- 10 performances, 9 dancers, 3 custom oval screens, large circular performance tent ('Shabono' design by Samper)
- National Arts Funders, Commercial sponsors, **CO-PRODUCED BY THE UNITED NATIONS.**



Click this link to watch [EARTH video on YouTube](#)



Museum of Anthropology

Vancouver BC

MystiQ 3D video projection installation

Bill Reid Atrium Interactive Video, Sound & Lighting

Visitors to the museum were greeted in Sept 2009 with interactive art displays that responded to their movements and hand gestures. The rotunda lighting responded to sound. Dancers with the mmHoP dance troupe energised the corridors and hallways of the museum.

DIGITAL VIDEO ILLUMINATION DVI System

A RESEARCH PROJECT

A SSHRC funded 3 year research project, working with
Prof. Robert Gardiner at UBC.

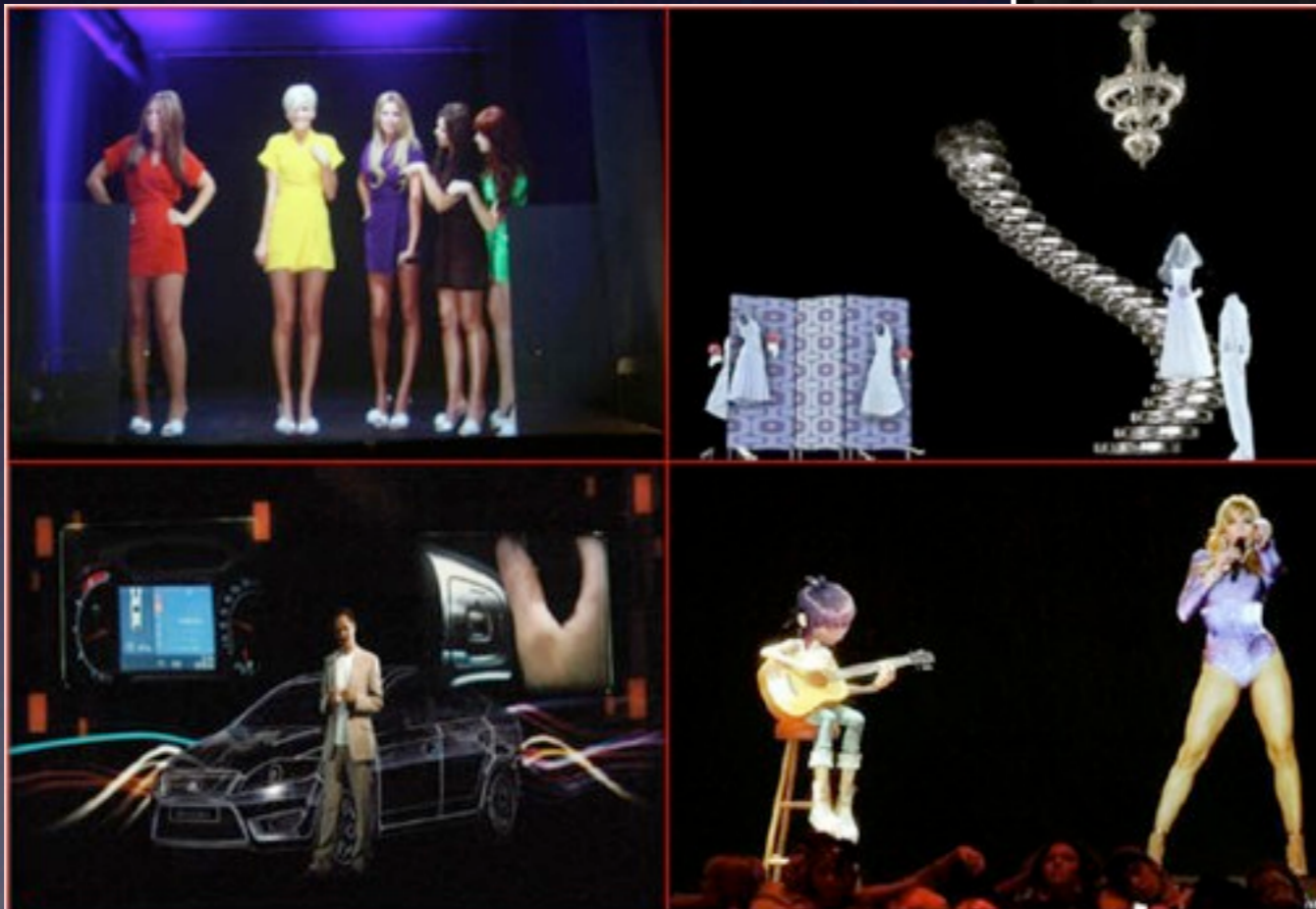
Research and Development of a control system of multiple video
projections as lighting instruments for live performance in a real world
and virtual 3D environments.



<http://faculty.arts.ubc.ca/rgardiner/rgsshrc/index.htm>

hi tech peppers ghost

- [Opera Erratica \(link\)](#)
- [Musion Eyeliner](#)

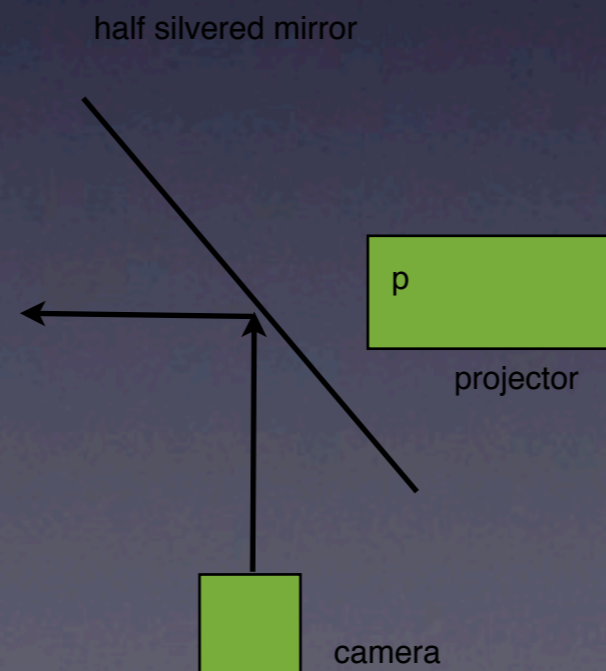
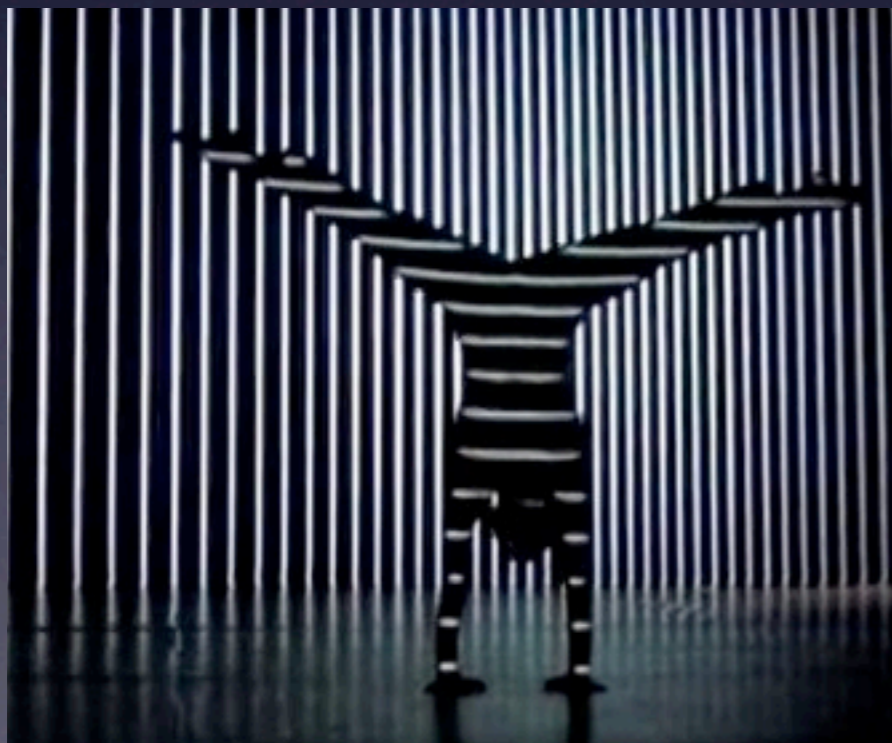


projection mapping



Infra Red PROJECTION MAPPING

- Klaus Obermeier



NiMATE skeleton tracking software

Skeleton points are sent via OSC messages into Isadora.

The tracked depth map image can be sent to isadora using the syphon capabilities of both softwares.



LIVE ART training

TROIKATRONIX.COM

Isadora Software

COLLIDING WORLDS... theatre, meets
interdisciplinary artists, meets VJs meets
commerce...

Isadora is a graphical programming
environment (data-flow programming) that
provides interactive control over digital
media, with special emphasis on the real-
time manipulation of digital video.

www.jamiegriffiths.com/isadoraworkshop/

PURPOSE OF THE WORKSHOP

Learn how to use Isadora software and set up a multi-functioning network with other softwares.

Apply the use of graphical programming to your own work

Destroy creative blocks

Share your experiences through creative process

introductions

practical skills... camera, music, imagery, tech?
level of experience & computer skills
creative goals

the basics

Isadora software is used to control media (video files, sound files, live video input (cameras), live audio input (microphones) , midi controllers (eg keyboards) , DMX signals (theatre lighting)... other softwares

A manipulated video image is output to a second computer monitor or to screens or installation environment by video projector/s.

Manipulated sound can be output to an external audio environment such as a theatre PA (multi-speaker) system.

Interdisciplinary tool for theatre, opera, dance, music, performance art, Installations, experimental films, abstract cinema, research in performance...

why isadora?

Simpler entry point into interactive programming.

Graphical programming software with an easier learning curve than most of the competitors, without losing complexity.

More flexible than traditional show control software (such as QLab) for live performance.

Faster build time, due to the supplied building blocks within Isadora of programming called 'actors' that contain prebuilt processing algorithms.

Quicker build time to creativity. Less tool-making is needed in the initial stages.

related softwares

Max/Msp & Jitter & PureData (P.D.)

www.cycling74.com

Plugins

[FreeFrame](#) free video processing effects

[QuartzComposer](#) (Mac)

[Syphon](#) (Mac)

Language based programming softwares

[Processing](#) [OpenProcessing](#) (Sketch examples)

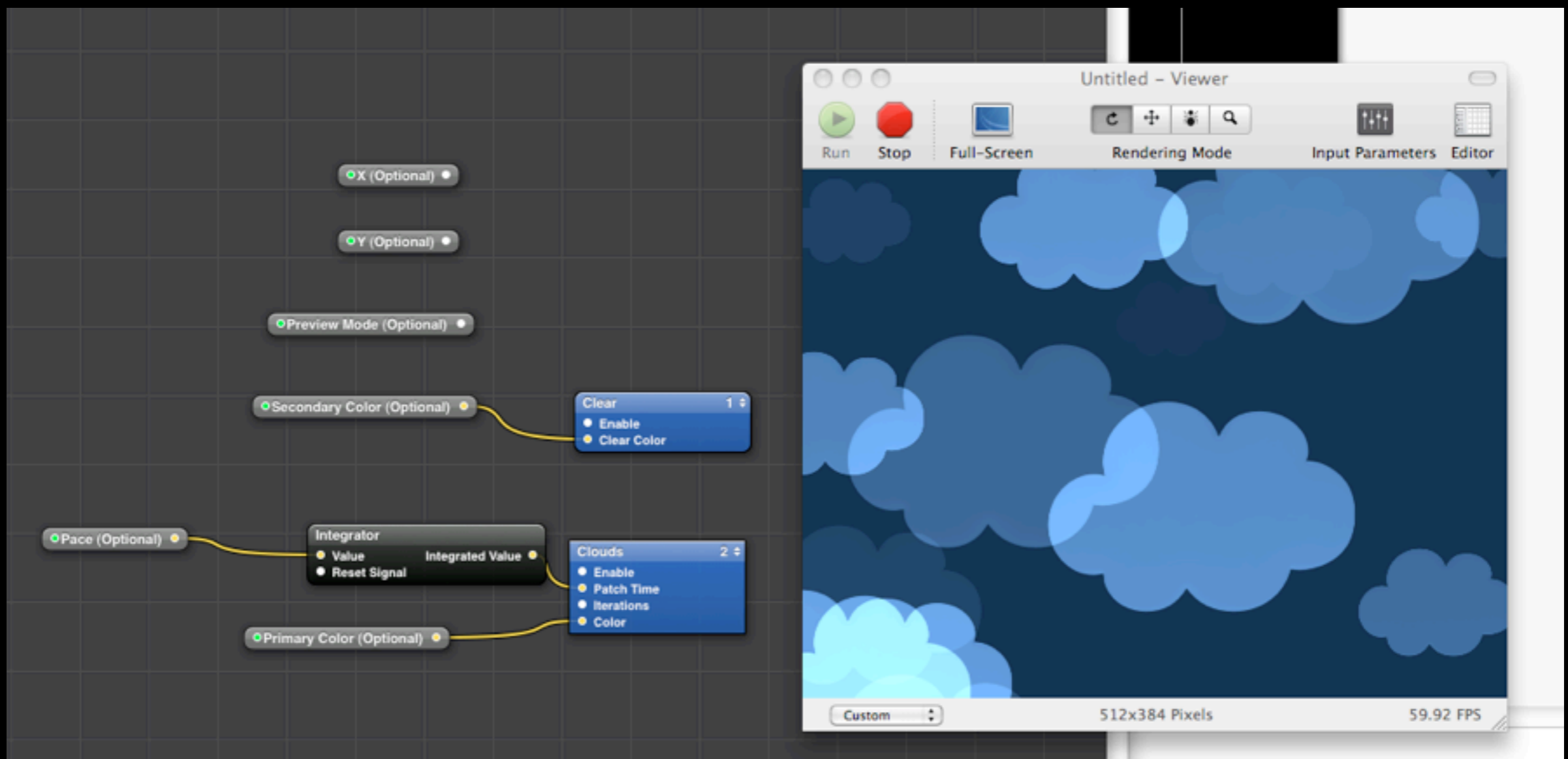
[Super Collider](#) (live coding sound art)

many Third Party softwares

[OSCulator](#), MadMapper, Visio

Resolume, Arkaos (VJ softwares)

PLUG INS such as Quartz Composer and FreeFrame plugins allow users to create custom actors of their own and to share them with other users.



what else can 'izzy' do?

Virtual MIDI in/out - allows Isadora to communicate with other MIDI enabled software eg Ableton Live 6, Max/Msp etc

MIDI in/out - through MIDI hardware, such as synths or MIDI controllers, MIDI keyboards.

Isadora can talk and listen to other software via **OSC (Open Sound Control)** via UDP (User Datagram Protocol).

Syphon shared video streams - Isadora is syphon enabled, so it can share a video stream with other softwares, such as MadMapper.

YUV processing (each pixel occupies half the memory of RGB, and is native for PhotoJpeg and DV formats). Hence much faster.

CONNECTIVITY Simple broadcasting of data between networked computers.

Syphon shared video streams - Isadora is syphon enabled, so it can share a video stream with other softwares, such as MadMapper.

Capture video to Disk - record realtime video inputs from cameras. Auto-loads to the media bin for use as a movie file, or held in a buffer for instant recall.

External Video output can be recorded to Quicktime movies or to a camera via a video output card.

Motion tracking - Built in modules using the EYES and EYES++ actors, for tracking motion

Sound Monitoring Built in sound triggers, using the Frequency Watcher and Sound Level Watcher.

CORE VIDEO AND AUDIO?

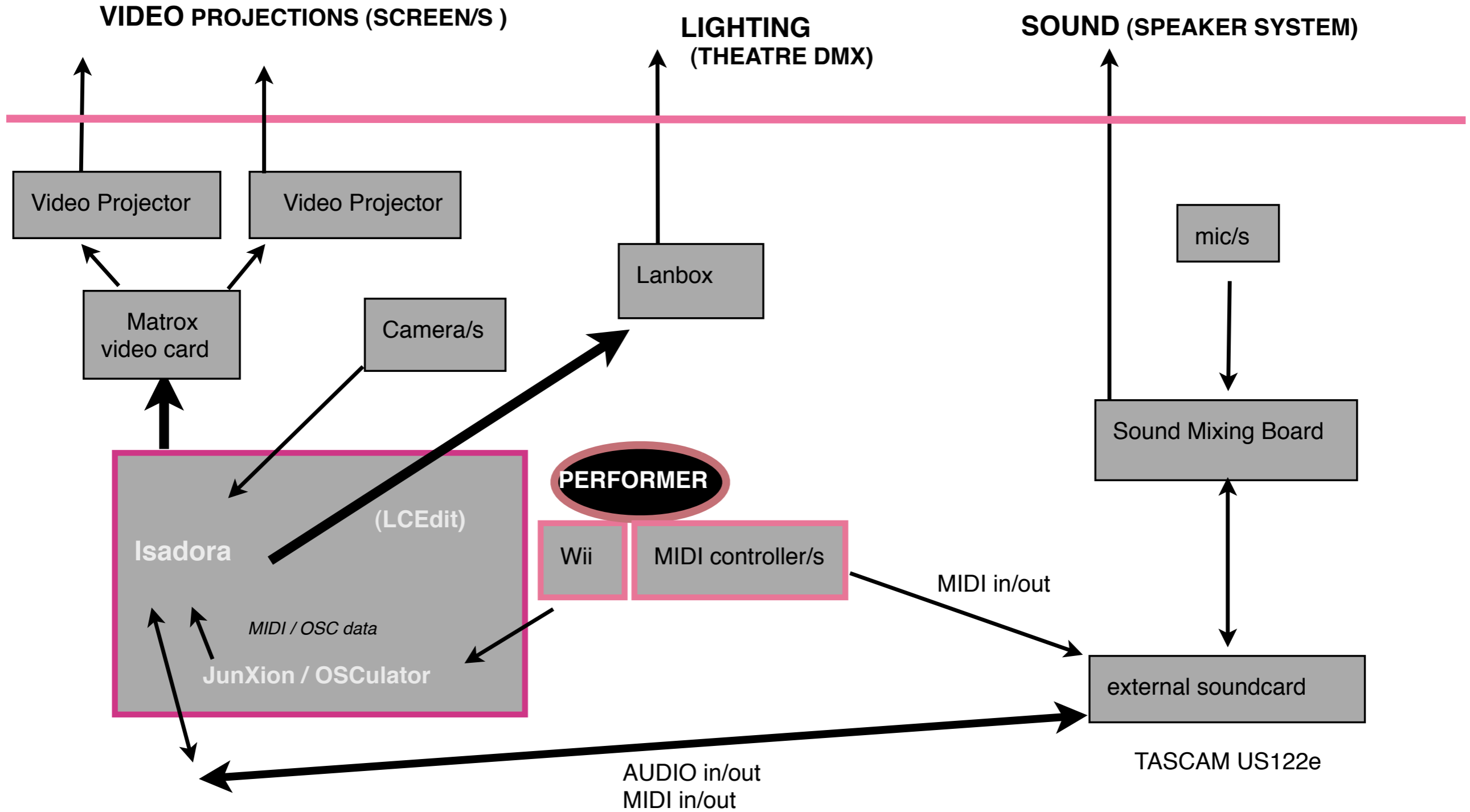
Multi-Channel Sound Output using Apple's Core Audio. (QKT Pro files can be made with multiple channels of audio).

“Core Video is the video processing model used by QuickTime 7 on Mac OS X to interface with the rendering and compositing layers in its graphics model. It delivers the images from QuickTime or other video source to the rest of the Quartz technologies in Mac OS X.[1]

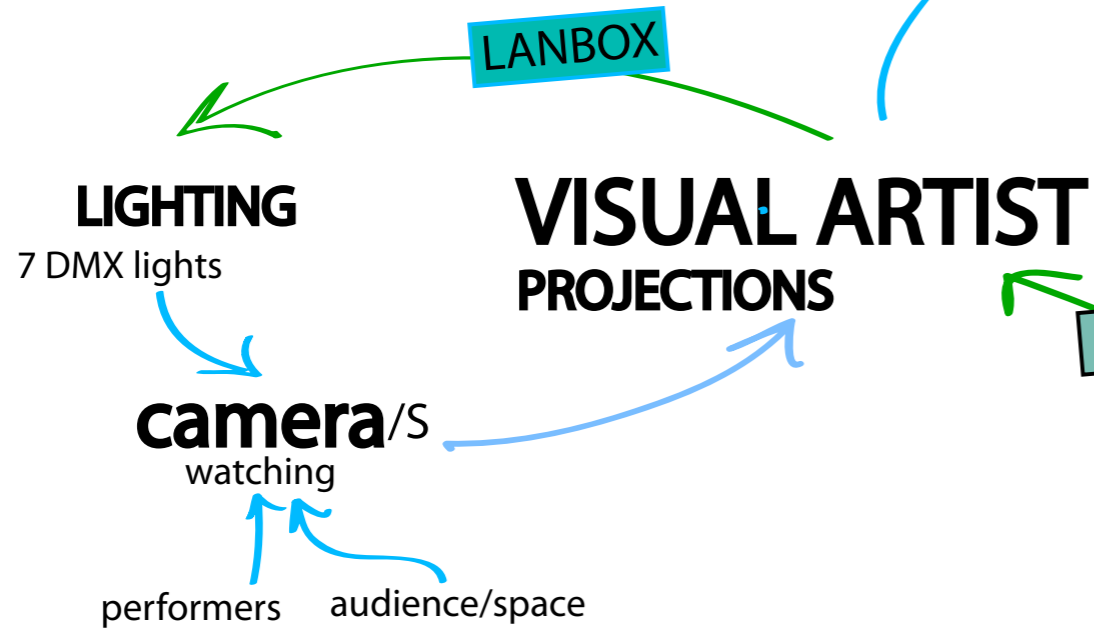
Apple's Core Audio documentation states that "in creating this new architecture on Mac OS X, Apple's objective in the audio space has been twofold. The primary goal is to deliver a high-quality, superior audio experience for Macintosh users. The second objective reflects a shift in emphasis from developers having to establish their own audio and MIDI protocols in their applications to Apple moving ahead to assume responsibility for these services on the Macintosh platform."

• **Setting up equipment** (hardware)

Interactive SOLO tech set up - jamie griffths



VISUALS & LIGHTING CREATED by JAMIE GRIFFITHS
Isadora software, Wii, MIDI, Lanbox, XLR sound inputs x2
 with additional processing of imagery affected by
 input data from sound analysis (listening) to the space
 input data from video tracking (watching) the space & lighting
 input data from Wii controllers of visual artist (physicality of artist)
 input data from Wii controllers of composer (physicality of artist)



ETHERNET

data from isadora can be sent back to alex (music) via ethernet
 data from Alex's Wii can be sent to Isadora (visuals) via ethernet

arrows show flow of information between the artistic mediums

COMPOSER MUSIC

XLR

MUSIC CREATED by ALEX NOWITZ
Lisa software, Wii, music software, voice
 input data from Wii hand controllers of composer
 input data from video tracking ('watching') the space
 input data from Wii hand controllers of visual artist

Interactive game-plan for Project 'Hybrids' with Berlin composer Alex Nowitz

