Screenshot of interactive image projection from *The Cave Painters: Invocation with Torches* https://vimeo.com/226524292
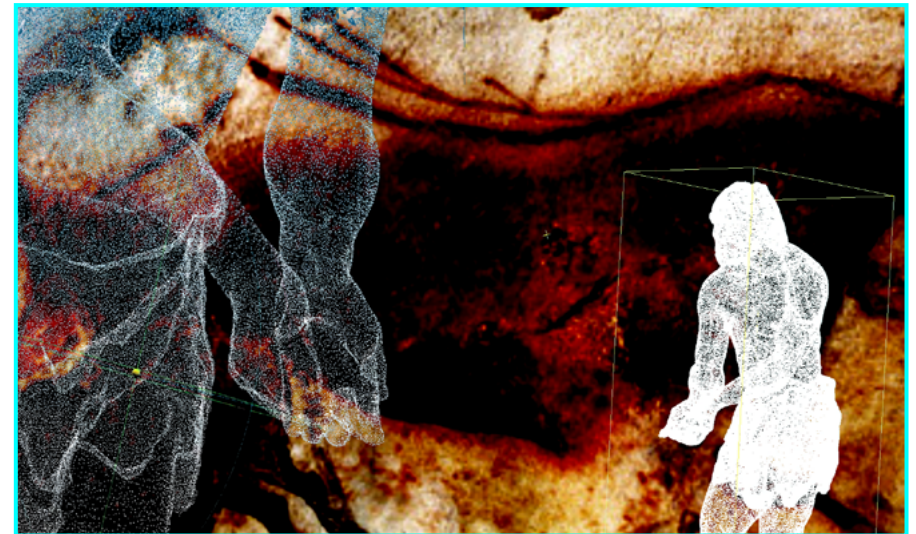
The Cave Painters
for Narrator, Live Electronics, Motion Sensing, and Projection

As composers, media artists, and theater professionals we were stunned by the beauty of the Casa Cava venue—we can only imagine the acoustics.

As for a text that might deliver a theatrical experience for the audience, we immediately thought of *The Cave Painters* by Eamon Grennan. As poetry, it uncannily mirrors Casa Cava's own mission statement: "The only passage from the dark entrance to the vast terminal cavity is an experience that leads to stripping the superstructures of the mind to go in search of inner depths." And as Grennan puts it, "the cave painters pressed deeper into the dark, at a crouch until the great rock chamber flowered around them and they stood in an enormous womb of flickering light and darklight, a place to make a start, to come to terms with the given world beyond this border zone."

And so, we devised a performative version of both the poem and the mission statement. Our intention is to reveal and re-animate what remains embedded in Casa Cava: disembodied ancient memories, magic, the medieval stone textures of the *Chiesa San Pietro Barisano,* and the stains of smoke from rituals beyond time and evolution.

To do so, we bring sensitive and refined digital instruments into the space. Our tactics and implementations for this are on the following pages.

Screenshot of image projection from *The Cave Painters: Lascaux Background* https://vimeo.com/226526753

The Cave Painters[1]

by Eamon Grennan

Holding only a handful of rushlight
they pressed deeper into the dark, at a crouch
until the great rock chamber[2]
flowered around them and they stood
in an enormous womb of
flickering light and darklight,[3] a place
to make a start.[4] Raised hands cast flapping shadows
over the sleeker shapes of radiance.[5]

They've left the world of weather and panic[6]
behind them and gone on in, drawing the dark
in their wake, pushing as one pulse
to the core of stone.[7] The pigments mixed in big shells
are crushed ore, petals and pollens, berries
and the binding juices oozed
out of chosen barks.[8]

The beasts begin to take shape[9] from hands and feather-tufts
(soaked in ochre, manganese, madder, mallow white)
stroking the live rock, letting slopes and contours
mould those forms from chance, coaxing
rigid dips and folds and bulges
to lend themselves to necks, bellies, swelling haunches,
a forehead or a twist of horn, tails and manes
curling to a crazy gallop.

Intent and human, they attach
the mineral, vegetable, animal
realms to themselves,[10] inscribing
the one unbroken line
everything depends on, from that
impenetrable centre
to the outer intangibles of light and air, even
the speed of the horse, the bison's fear, the arc
of gentleness that this big-bellied cow
arches over its spindling calf, or the lancing
dance of death[11] that
bristles out of the buck's
struck flank. On this one line they leave
a beak-headed human figure of sticks
and one small, chalky, human hand.[12]

We'll never know if they worked in silence
like people praying—the way our monks
illuminated their own dark ages
in cross-hatched rocky cloisters,[13]
where they contrived a binding
labyrinth of lit affinities[14]
to spell out in nature's lace and fable
their mindful, blinding sixth sense
of a god of shadows—or whether (like birds
tracing their great bloodlines over the globe)
they kept a constant gossip[15] up
of praise, encouragement, complaint.[16]

It doesn't matter: we know
they went with guttering rushlight
into the dark;[17] came to terms
with the given world; must have had
—as their hands moved steadily
by spiderlight—one desire
we'd recognise:[18] they would—before going on
beyond this border zone, this nowhere
that is now here—leave something
upright and bright behind them in the dark.

Eamon Grennan, "The Cave Painters,"
from *Out of Sight: New & Selected Poems*.
Copyright © 2010 by Eamon Grennan.

---

1 This poem is the timeline for the composition. It is delivered by the narrator— intact and mostly unprocessed
2 The Casa Cava central cavern.
3 Participants enter. Multi-channel audio established.
4 Computer "painting tools" are revealed and established (see Implementation and Technologies, next page).
5 Firelight, shadow play, subtle hints of Plato's "Allegory of the Cave"—an unavoidable shared reference.
6 Spatial audio: satellite speaker in the passageway.
7 Projection: plain rock textures.
8 Computer painting tools evoke the prehistoric.
9 With lyrical painting gestures, the interactive layer of point clouds and animated mesh structures is established on the Casa Cava walls. In a pentimento effect, the background layer reveals the Lascaux and other cave paintings.

10 The narrator steps down into the light, and mimes a painter in this prehistoric ritual.
11 The digital vertex mesh objects animate. The motion graphics imply that the "spirit of hunt" has entered and controls the ritual.
12 Climax and abrupt switch of tone. Interlude: establish monks murmuring in reverberant cloistered space.
13 Textures of Matera's *Basilica San Pietro Barisano*
14 Calligraphy slowly transforms into flocks of birds swarming into the Basilica. The effect ends at "globe."
15 Call-and-response of bird song.
16 Transition back to the cavern. Another pentimento effect of all the elements.

---

17 The effects slowly reverse. Seepage from behind the stone walls erases the images.
18 A pause. One archetypal hand remains outlined on the wall. The sound design retreats respectfully into the distance and fades to silence.

Implementation and Technologies

Origins of this Project

The Cave Painters is an extension of our earlier project, *Data Fetish Cave - 2013*[1] which relied on the NI/Synapse, Kinect VIA, and our own custom scripts for MAX/MSP. Since then we've created Generative Art with Jitter,[2] multi-user Leap Motion sensing,[3] markerless facial capture for animation,[4] VR projects,[5] Prototyping Tools for Interactive Music,[6] and much more.[7]

Images

The Cave Painters is site-specific for Casa Cava. Our project makes use of projection mapping techniques to make visual the concrete and abstract imagery that is referenced in Grennan's poem. There are two layers of imagery. The first is traditional projection mapping; the second is an *interactive* layer controlled by a motion sensing camera or new interactive tools such as the Vive trackers and the Leap Motion Sensor.

You can see from this short video test clip how that works:
https://vimeo.com/226586276

The transparent point clouds and mesh structures shown in this clip are on the secondary interactive layer. This overlaid imagery is generated in a computer game engine (Unity3D), controlled by Motion Sensing (HTC lighthouse), and sent out to three projectors via a DataPath-3.

Narration and Audio

The voice of the narrator is direct and unprocessed. The multi-channel audio is primarily musique concrète and electro-acoustic sound FX;

the fourth stanza introduces medieval organum and some plainchant. The projected imagery is, at times, reactive to the live-generated audio. MAX/MSP software is used extensively for audio.
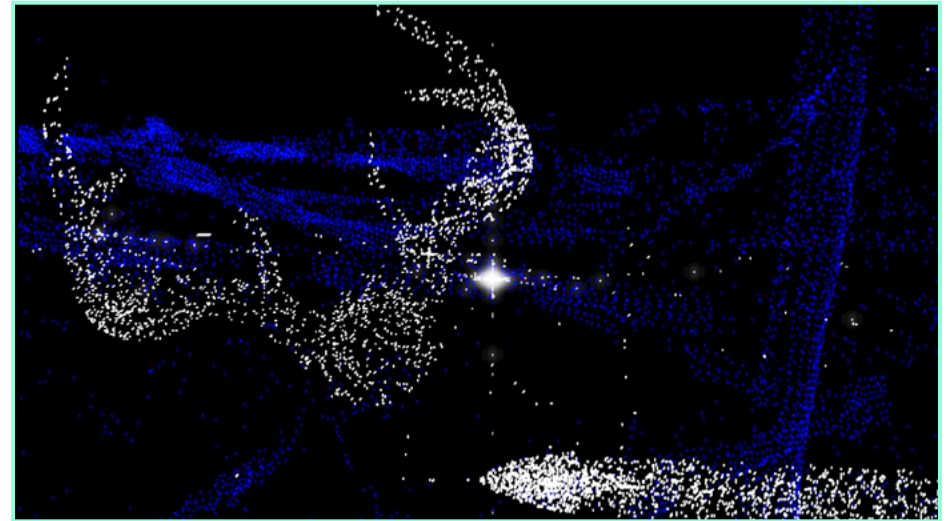
Screenshot of interactive image projection from *The Cave Painters:The Cave Painters: The Hunt!* https://vimeo.com/226373623

"Data Fetish Cave - 2013" for multi-screen video projections, Microsoft kinect camera motion sensing, and multi channel live electronic audio
https://nickvenden.files.wordpress.com/2015/12/datafetishcaverehearsal_small.

---

1 https://nickvenden.files.wordpress.com/2015/12/datafetishcaverehearsal_small.mp4
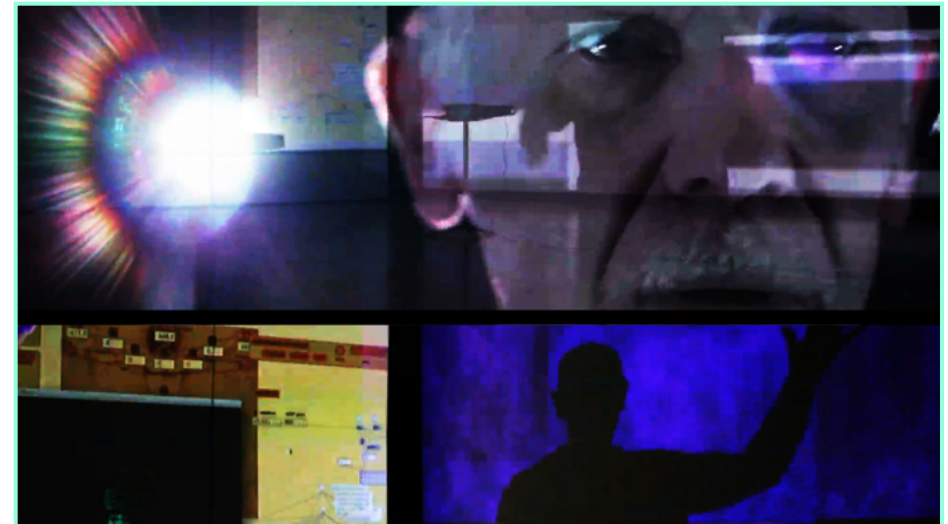2 https://nickvenden.files.wordpress.com/2015/12/venden_interactivegenart_00.mp4
3 https://vimeo.com/81235462
4 https://vimeo.com/147642458
5 https://nickvenden.com/current-projects/
6 https://vimeo.com/187056775
    http://www.soundlibrarian.com/gsc-nick-v.html
7 https://nickvenden.com/current-projects/ (Vive, GearVR, and Oculus)

Other Aesthetic Considerations

In a sense, we who create digital spaces are modern day Phantasma-gorists, inventing sensitive instruments to summon into our world the disembodied entities that exist in mind and in bits. When data is geo-tagged to a specific space, does it have any real presence in the physical world? Does it become tied to the space yet still disembodied? The act of connecting digital objects and experiences to physical space, by way of artifice, connects the embodied and the disembodied much the same way as memory loses its corporeality as soon as it's formed yet retains the same connection to space. Land and culture are fought over fiercely because space is where disembodied memory lives.

As VR and AR artists our role is to populate the ethereal and to create a bridge between it and the corporeal reality of ourselves and our au-diences. In this piece we act as mediums, honing our highly sensitive and refined instruments into the ancient space of beings with whom we share so much yet with whom we could not communicate directly across time and evolutionary development. Yet we can still pick up what they have left for us and serve as interpreters of their fears and triumphs. Our aim is to detect the traces left behind and to serve as interpreters of the fears and triumphs contained therein.

In *The Cave Painters* we recognize in the inhabitants and in ourselves that the fundamental human experience is that of the surge and repose that comes when we reconcile the immutable conditions of mortality. The question that Beethoven asks despairingly in his final string quar-tet Opus 135 ("Muss es sein?") is answered by a joyous response ("Es muss sein"). Just as in the poem by Eamon Grennan, we do not know the conditions under which they left their marks; but we can recognize that through the metacognitive act of abstracting the visceral experi-ences of the hunt, they birthed humanity and "came to terms with the given world."

-Steve Boyer

Should this proposal be accepted, a short list of equipment would be required from the Casa Cava venue. It would include several powered audio speakers and a small mixing board. We could of course rent these on site.

The projections would be designed for three of the sculpted stone walls in the venue. We own appropriate projection gear of varying lumens and flight cases for the digital hardware.

If the logistics of using the central performance stage prove too difficult, "The Cave Painters" could be re-fashioned as an inter-active environment for one of Casa Cava's other chambers. In that way, the audience could become (limited) participants.

Another option would be to revive Data Fetish Cave. Howev-er, creating something specific for the Matera venue would be much more exciting for us and your audiences.

Nick Venden (media artist-performer)
VR360Audio
https://nickvenden.com/
nickvenden@gmail.com

Martin Herman, Phd (composer-performer)
Design Department - Chairman
Professor of Music Composition - Cole Conservatory
California State University Long Beach
martin.herman@csulb.edu

Steve Boyer (designer)
Department of Design - Assistant Professor
California State University Long Beach
steve.boyer@csulb.edu
www.steveboyerdesign.com