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Leslie
Rollins

Energetic Vessels
Flow-Through Transformation

Alfred EIA
2020

Energetic Vessels: Flow-Through Transformation



Leslie Rollins

Alfred University
MFA Thesis Report
May 2020

“The picking of the process is
the element of control.”

– Peer Bode

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Energetic Vessels Flow-Through Transformation

MFA Thesis Report

Energetic Vessels

As a child I remember waking up each morning to one of two sounds: a piano student playing through their lesson in the living room directly below my bedroom, or the chirps and calls of birds enjoying breakfast at the feeders my mother faithfully filled. Of the two choices, I preferred the cheerfulness of the birds over the varying skills of my mother's students. The numerous feeders outside attracted an ever-changing assortment of feathered visitors, who came for the food but stayed for the variety of habitats within the yard. My sandbox was tucked away in a stand of blue spruce trees, and I played in the cool shadows, accompanied by the sounds of blue jays, crows, robins, and woodpeckers.

I can't recall a time when I was not surrounded by sound of some sort, either of a human-generated musical variety or ornithological in nature.

My love for being in the outdoors may have started as a child, but my field work began as the result of some creative lesson planning by my 8th grade science teacher. He saw I was struggling with the coursework shift from natural sciences (which favored my reading and vocabulary-memorization capabilities) to laboratory-based sciences (which revealed my weaknesses in math) and his solution was to send me into the field to record the numbers and activities of birds and other wildlife on our school campus.

While this alternative science class didn't develop my understanding of hard sciences, it did set me on a path that evolved from counting birds to field-based photography, video recording, and audio recording. As I developed and refined my interests for field work I prioritized the acquisition of high-quality field recorders, microphones, hydrophones, and a parabolic dish (which allows for a sort of audio zooming-in). My expanding abilities and equipment led to opportunities for me to record around the US, as well as to travel to places like Kenya, Taiwan, and Peru, where artist residencies provided me with a base of operations in remote locations.

Field recording, both audio and video, is still a critical element of my artistic practice, but an earlier drive for documenting unspoiled subject matters far-removed from human interference has shifted with my realization that humans impact everything all the time. There is no removing us from the environment. This revelation came to me in the jungles of Peru after I had hiked 8 miles deep into the Amazonian Highlands in search of an untrammelled place to do some field recording. I felt like I had finally reached a location where I could only hear myself breathing among the insect, animal, and bird sounds, and the noises of the plant materials themselves, creaking in the breeze that flowed through the foliage. I unpacked my field gear, set up the elaborate microphone

systems on tripods, put on my headphones to monitor the audio, and pressed record. Within 30 seconds, the sound of a chainsaw ripped through the space and completely overpowered the audio landscape. Apparently, I was not the only one who had hiked a distance into the jungle looking for greener pastures. I stopped the recording and explored the area to find out who was using the chainsaw. I came upon one of the banana farmers from the village, busily clearing out some land to expand his family farm. I eat bananas every day, and they are especially delicious in Peru. As I considered my annoyance at his chainsawing interrupting my field recording, I suddenly understood the conflicts between this farmer, my daily banana habit, and my quest for capturing a wilder, purer Peru on record.

I also questioned why I found human noises in nature so aggravating. I can appreciate a deliberate use of noise in music composition in early *Musique concrète* and tape music, or when introduced as a random compositional influence in the writing and performance of mid-century composers. I'd found space for noise in the concert hall, and within sound-objects in a gallery, but it displeased me in the "natural world." Wasn't this a place where wildness should be the ruling influence?

While this moment in Peru began my exploration into the expectations I held for my own experiences in the natural

world, I spent the last year of my MFA program considering the impact that humans have on nature. During this process I realized I was one of the sorts of people I was getting so annoyed with because of the seemingly unwitting damage they were doing. I was complicit in a type of unconsciousness.

I am a product of a form of Transcendentalism, itself springing from a Judeo-Christian Romanticism, rooted in an idea that the best Earth is a pure Earth. I was brought up to believe that there was once an unspoiled creation that reflected a powerful divine will at work in the universe. Through the Fall of Humankind, when they gave in to Sin and Temptation, spoilage was first introduced. Pain and suffering appeared and thus began the slippery descent from Perfect into a complete degradation in need of salvation. The Transcendental dream of reconnecting to this divine, natural state offered an escape from organized religion, but replaced the Christian zeal for personal purity facilitated by deity with the idea that Nature was itself somehow pure, functioning above, or at least in spite of human influence. The push to explore, preserve, and perhaps even become one with wild spaces led to lives and practices which can seem quite ascetic. Champions of this point of view—Thoreau, Muir, Turner, and Walden—all propagated this myth-making about raw, untamed places.

Growing up in the late twentieth century, these ideals seemed comforting and appealing when viewed from my own experience of industrialized globalism, a human propensity for cruelty and violence, and a rabid capitalism that consumes raw materials with a seemingly unquenchable thirst. A desire to escape this tainted world was coupled with a temperament that loved finding rare things, adding them to my collection, and then sharing them with others, and so I voraciously sought this natural ideal off the beaten path, deeper in the forests, higher in the mountains, further from human occupation and settlements, ever looking and listening.

When I felt like I had discovered a place still pristine enough, my impulse was to catalog it, document it, and share it in the hopes that perhaps, if someone experienced it the way I did, they might come to value it, too; in turn, to treasure it, to promote it in the hopes of somehow preserving it. The ideal outcome in my mind was for humans to allow it to be and to live its way in the world without what I perceived as human-meddling at best and a callous disregard for nature to the point of extinction at worst.

In the middle of the jungle with that chainsaw roaring, I felt shame about my genuine but misguided attempts to “save the world.” What impact had I had by simply being in that place? All the noise and pollution made by multiple

modes of transportation as I traveled thousands of miles from home to stand in this spot, seeking the unspoiled wild? The reality was: I was making just as much “noise” as the man clearing the land. And I wasn’t even planning to grow bananas, though I did have another “fruit” in mind: a hope to share sonic and visual findings with others, to perhaps foster an interest or nurture an awareness of this place.

I realized that I needed to better consider the human animal in my passion for the animal world, difficult though this might be. This is an aspect of my practice that is developing and is still lacking natural compassion. I’m eager to give examples and account for as much non-human agency as possible, but I get increasingly unsettled thinking about how to account for and support a human agency. While this nervousness seems understandable given the experience of unchecked human agency equating to a “dominion,” pushing anything other-than-human to the brink of extinction and ecological disaster, I fear I am taking too simple a view of good vs. bad. It seems that environments are remarkably resilient and strong, oftentimes not only able to survive ecological disaster, but to rebuild in novel and successful ways. More and more, the primacy of human agency has been questioned and a definition of a “life supporting” ecosystem has expanded to consider potential futures where humans are not likely

needed. What were former outliers in a world weighed against the ego of human dominion might come out just fine.

In response, I am seeking shared spaces between human and non-human agencies which can support, nurture, and leave room for the other to thrive. In navigating and mapping such spaces, I regularly encounter unexpected phenomena. I am heartened by Karen Barad's notions in this area, particularly her use of the word "intra-action":

...in contrast to the usual "interaction," which relies on a metaphysics of individualism (in particular, the prior existence of separately determinate entities). A phenomenon is a specific intra-action of an "object" and the "measuring agencies"; the object and the measuring agencies emerge from, rather than precede, the intra-action that produces them (*Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*, 128).

I like the push/pull of inhabiting space as both "object" and "measuring agency" within my practice since it lets me both play with and probe the nature of entangled intra-activity. The binary idea that it is humans vs. the non-humans is crumbling. Neither can decide for the other. Both get to contribute in their own way on their own terms for their

own reasons. Intervention is called for when something overwhelms the other-thing to the point of degrading their quality of life and ability to simply live. But the question remains: is there an observing entity governing a balance and keeping score?

My interest in collaborating to create the body of work in this thesis is to consider the histories at work within the various contributing actants. My embodiment of artistic intent intermingles with the biological history of the avian specimens in the collection, the human histories of the collectors and preparators, and the institutional history of Alfred as a place of science, ecology, and art. An exploration of these intersections has produced a body of work that speaks to my concerns for conservation and a related site-specificity, promoting opportunities for all inhabitants to not merely survive, but to thrive.

When my collected data and observations suggest possible deterioration, these moments are more closely considered. Loss of life is one such deterioration, and something that provokes and moves me towards action and consideration as a way of processing my discomfort and grief. The bird wing pictured in several of my pieces belonged to a young, first-year peregrine falcon found dead at the corner of Satterlee Hill Road and State Route 21 in Allegany County on October 16, 2019. This immature male did not

survive its first migration from the tundra of Northern Canada to South America. Postmortem measurements and body weight suggest that he was malnourished, and it is hypothesized that in his eagerness to feed, he lost track of his environmental situation and was struck down by a moving vehicle while in flight.

Peregrines are remarkable birds for many reasons. One of the fastest birds, they have been clocked at over 200 miles per hour when diving from above to snare flying birds. Such staggering speeds are supported by a vision system thought to allow them to register around 130 frames per second. The human visual system can only process 10 to 12 images per second and perceive them individually, and any higher rates are perceived by humans as motion. The peregrine sees nearly 10 times as much as humans do, yet the superior sight was not able to protect him from the speed of human technology.

The impactful roles of humans within our shared ecologies raises concerns about the rippling effects that actions/inactions have, not only on our shared environments, but also on our psycho-spiritual selves. Seeking interventions, I collaborate with multiple intelligences to shift consciousness. This process of engaging the “other” generates much rich material from gathering in the field and processing in the studio. My field studies and recording

practices create spaces where participation from often unconsidered “others” makes their presences known in a seemingly endless array of phenomena.

The collaborations found in this creative practice encode the experiences of the journeys in a primordial mythical symbolic language of vessels, animals, and smoke. Such symbols are often found inscribed within and around transformative ritualized spaces of caves, temples, chapels, and sacred sites. Resultant media and objects that are gathered during these encounters with non-consensual realities are then recombined through processing using generative tools from more contemporary electronic systems—re-encoded for transmission with marks that preserve and protect the artifacts as vessels for the use of past, present, and future selves.

Considered as an expanding cartography, this body of research maps travels and experiences as witnessed within and around the spaces of liminal psycho-ecologies—documenting energetic responses to internal and external resonances and dissonances.

Nuances of phenomena are loosed when exploring the many layers found within embedded ecologies—layers of intertwined relational states comprised of co-mingled intelligences sharing consciousness and environments

through co-inhabitation of mind, body, and spirit. Through cataloging aspects of such encounters experienced during frequent collaboration, my artistic practice articulates experiences through transcription, transmutation, and transmission.

Transcription is the act of documentation, most commonly through audio and video recordings. Transmutation is the process of giving voice and agency to unseen collaborators by allowing them to encode their presence in the processing of the gathered transcriptions. To this end, my natural improvisational performance practices are bolstered with multiple layers of aleatoric and chance methods employed to influence the generation and embellishment of the materials. Through intentionally leaving space for decisions and actions of an “other” I consider this entire process a collaborative one. I pause my making and creating to listen for them, look for them, and I respond to them. It’s a similar process to what I understand about Paulina Oliveros’ Deep Listening, except I expand my understanding of her methods to include full participation of non-human agencies. This heart-open stance is engaged through a practice that is fully embodied and tuned to experiences that are grounded in Earth-honoring traditions and teachings. I am grateful to the myriad intelligences at play all around me and am thankful to the teachers and explorers who have helped me better learn to navigate and

celebrate my path.

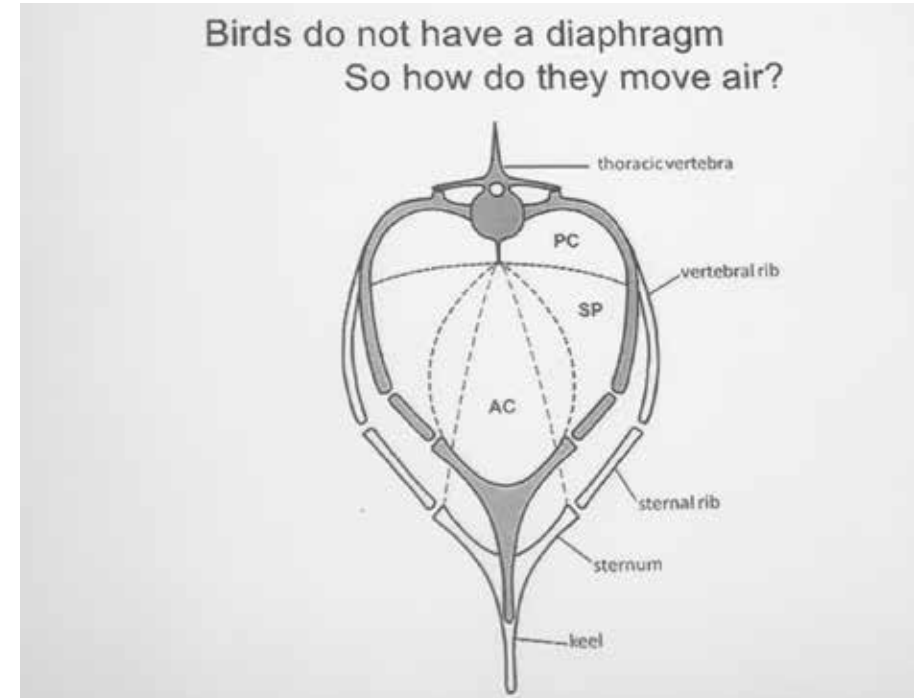
Finally, transmission is the point the material is sent out into the world for display, contemplation, and further consideration. It is my belief that some of the same resonances and dissonances I experience in the gathering and creation of these materials will respond energetically when other “others” come in contact with them. To that end, the whole process continues to unfold in cyclical fashion, which will likely continue to yield surprising and unexpected results.

MFA Thesis Exhibition

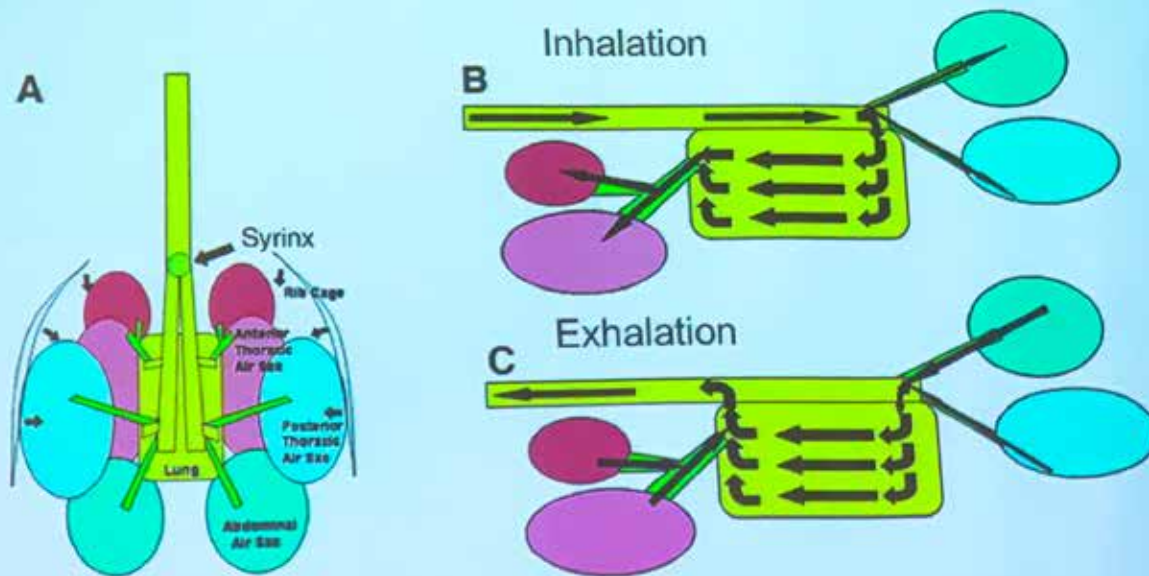
Introduction

Bird-related imagery and sounds are prevalent in my thesis. The exhibition's title is inspired by birds having a one way at a time flow-through respiration system—with air moving in only one direction through their nine air sacs. The unidirectional flow of air through a bird's respiratory system maintains higher blood-oxygenation levels. Air moving into their system is called inspiration, and air exiting their system is called expiration. In contrast, air flow for mammals is bidirectional—moving both into and out of the lungs at the same time. The air reaching a mammal's lungs is less oxygen-rich because the overall air mixture contains a significant portion of older air that has already been in the lungs for a while, and is hence deoxygenated. Simply put, birds are more efficient breathers than humans.

Energies, much like oxygen, can flow in, through, and out of various bodies, with each body having differing capacities for gathering, processing, utilizing, and storing such energies. The pieces discussed here are records of phenomenological interactions with myriad impulses and intelligences encountered within and around rituals of making and other flow-through states. Additional symbolic language is further explored using my personal audiovisual vocabulary of lights, darks, colors, movements, and repetition.



Circulatory & Respiratory systems



Pages 23-25: Installation in varying light levels, *Peregrine Offering* (left, in image), *Re-Winged* (center, in image), *Barred Owl* (right, in image)







Performance

Lasered Palo Santo for Peregrine in Bull Moon

Although pieces in a gallery context are often considered the finished products of an artistic practice, my practice favors the state of making over any production-oriented goals for finalized pieces. Engaging in intentional acts of creation presses the pause button on consensual reality and opens access to non-ordinary states—allowing a different experience of time in which to more fully encounter and process emotion or energy-in-motion.

I planned to open my show with a ritual performance to prepare the gallery space. Stills from video documentation show this ritual, which was performed in my home studio instead, due to school studios being shuttered in response to the Covid-19 pandemic.

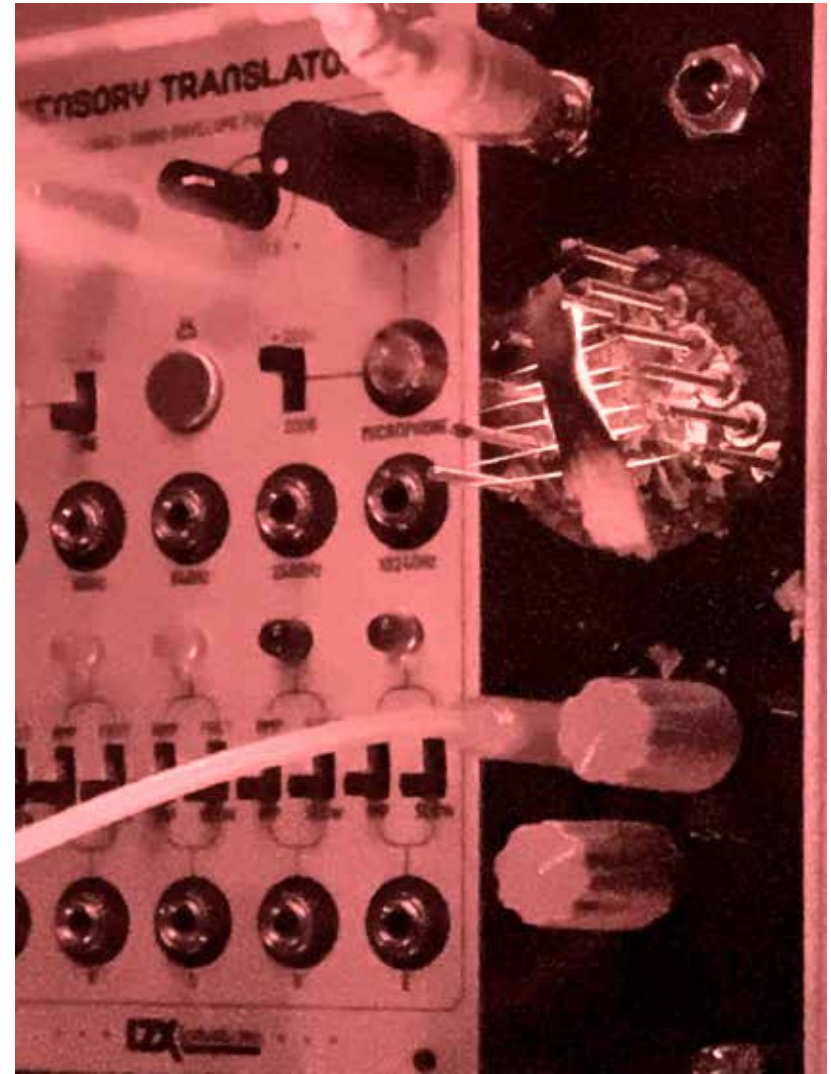
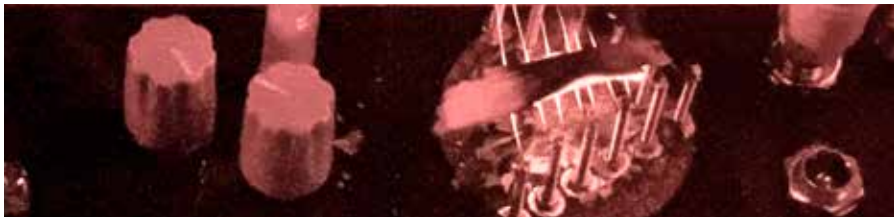
This energetic preparation of both myself and the gallery denotes a threshold and establishes a portal between consensus and non-consensus realities. The ritual is a symbolic vessel meant to hold and protect space for all entities contributing to our co-mingled states of consciousness. This is deeply similar to my artistic practice—intentional acts of creating and making in response to energies I feel intuitively resonant with. This making practice is often responsive, but it can also be an act of intentionally transmuting energies at play in the world to celebrate and claim space. This ritual is a way to mark a before and after, to invite movement through

pre-existing energies past a threshold, into an enlivened shared space bathed in traditional elemental semiotics of heat, light, fire, and smoke.

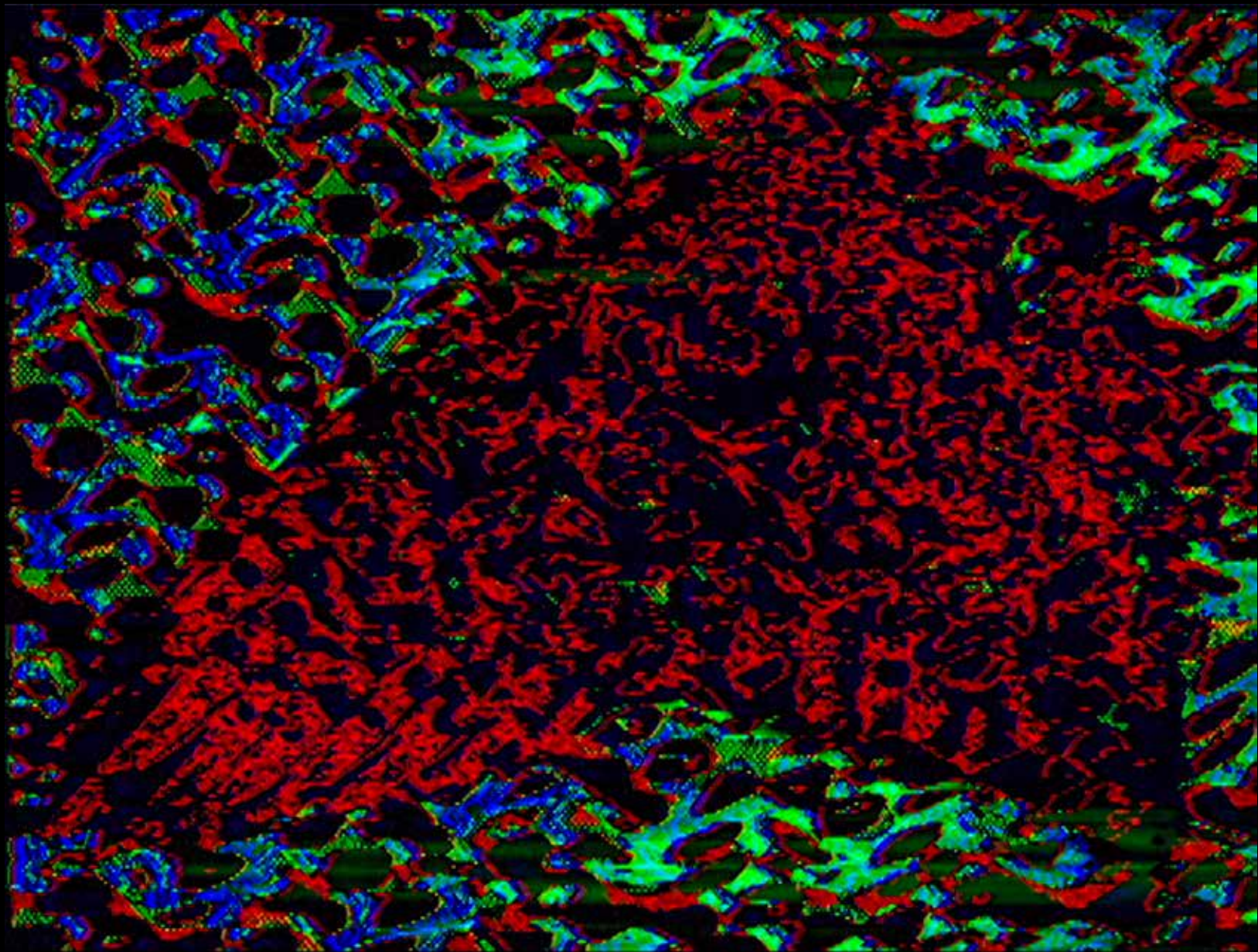
This performative ritual includes burning a piece of palo santo on the wires of a module in my synthesizer, with the temperature and intensity of burning controlled by voltage signals from the rest of the system. The smoke rising from the wood interacts with a red laser aimed into another module's photonic sensor, and influences the coloring and patterning of an image of a bird's wing. When the laser connects fully to the sensor of the module, the wing on the screen floods with red—the light (the laser) gives life (red color, symbolizing blood) to a dead object. When the laser is blocked, the wing is in darkness, becoming a void made visible only in relation to the patterns around it, depicting the ways we may not be aware of non-alive things even though they are unmistakably all around us and impacting our shared ecosystem.

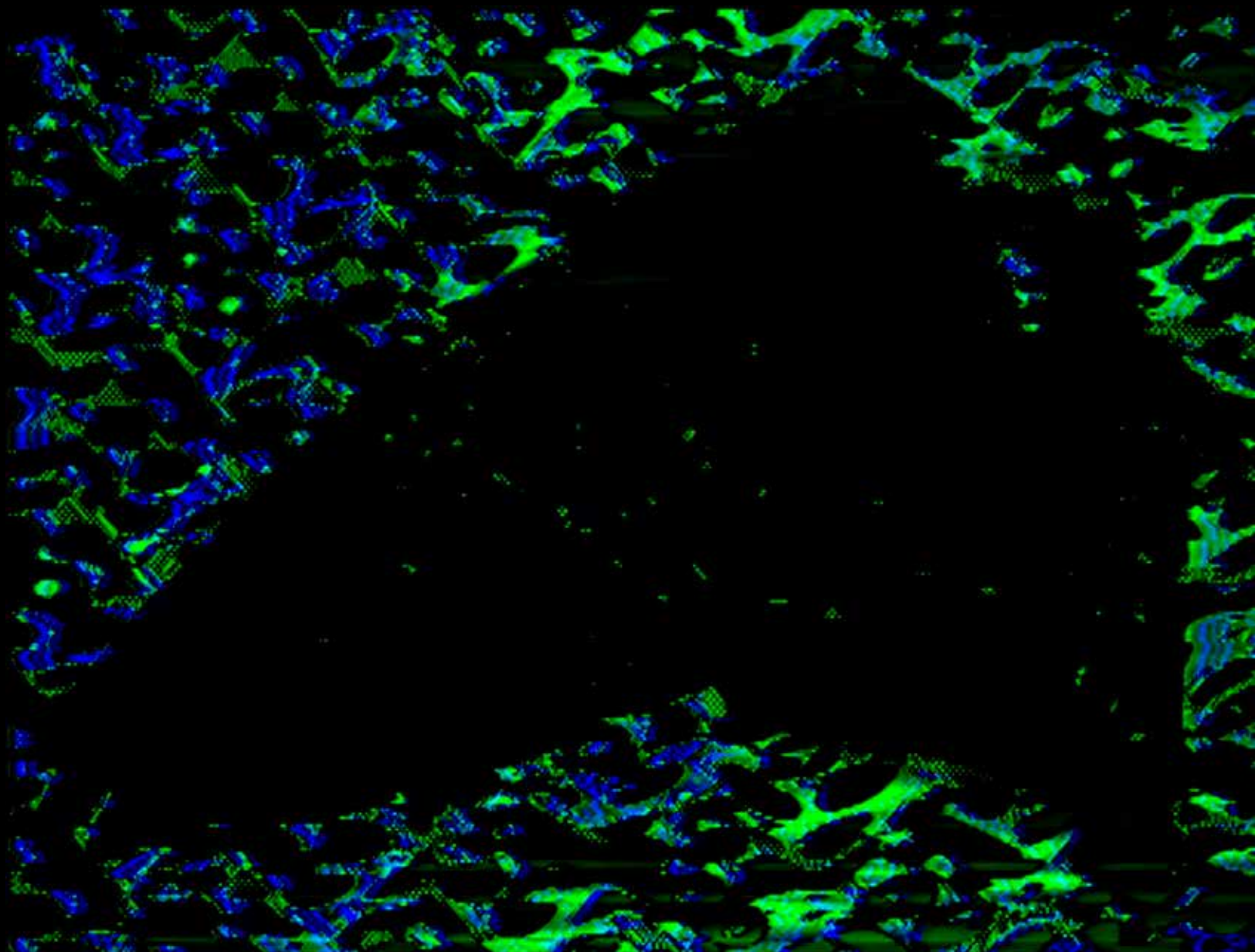
The transmutation of palo santo wood through the audiovisual system is transmitted to the viewer via floor-to-ceiling wall projection. This ritual makes visible the energetic transformation that I experience when interacting within my studio and in performance practices. After the initial gallery performance, documentation of it would be projected for the duration of the exhibition. I'm

inspired by people like Joseph Beuys, Merce Cunningham and John Cage in the way that they performed within a space and then left behind artifacts of that performance. This is a process of not deliberately constructing an object, but rather leaving traces of a lived experience meant to aid in remembering the activities of creative response.



This page: Palo Santo wood burning on the hot wires of a module
Pages 30-31: Stills from the performance, showing the peregrine wing flooded with blood and in darkness





Sculpture

Barred Owl (Spiral Pyramid Form)

A photographic still image of a dead Barred Owl, processed with my video synthesizer to re-color and animate its movement, is shown on a synchronized set of six cathode ray tube (CRT) television monitors. This image of a dead creature, methodically photographed using a copy stand setup to capture twenty to thirty separate images with differing focus points, has been digitally post-processed to combine the collection of related photographs into one hyper-realistic composite image. The image is then mapped onto analogue CRT monitors with the use of what some may consider a dead or dying technology: a machine that creates frame-accurate synchronization from the output of multiple DVD players.

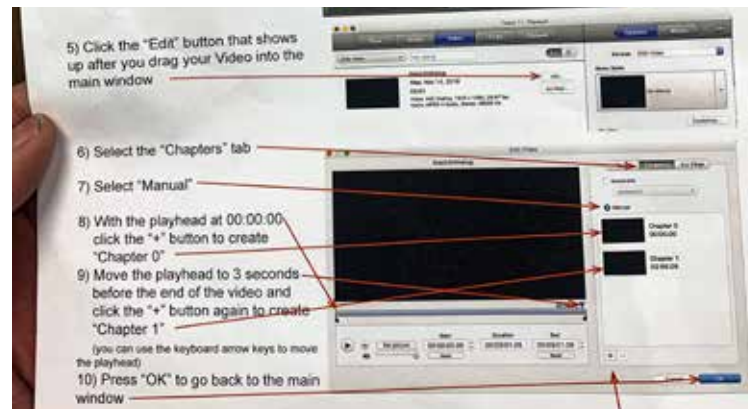
The resultant colors and image quality displayed on the screens vary in unpredictable ways due to the degradation of the aging monitors—degradation exacerbated by, ironically, first overuse and then long periods of very little use. While this video could be displayed using more contemporary technologies (4K monitors and a computer-based sync system), which would yield much more predictable results, I instead choose to frame natural history findings through media archaeology, exploring the remains of both a formerly living entity and an historic technological system, seeking to preserve personally significant elements within this piece. While the sync system is designed to create a unity across the screens, the monitors instead reveal color, pattern, and

detail inconsistencies due to the age and electromechanical degradation of the component parts. It is the unpredictable results I find so intriguing: they seem to breathe a new, unexpected life into the images and the sculptural structure of the stacked monitors. The monitors are stacked in a pyramid-type shape, and each monitor is rotated within the stack to emphasize the spiraling directionality of the images. Audio field recordings of Barred Owls also play through the individual television speakers in the stack, snaking and spiraling in and around the pyramid. The pastoral sounds captured at dusk are quiet and often a stark distinction to the high-contrast, intensely colored images of the owl. The visual elements remind me of an iconography often used in doors, windows, and other elements of temple architectural. In combination, the visuals on the screens, their arrangement in the stack, and the sounds may be read as a sort of altar; an intentional built space to remember... remember animal lives, remember technologies and their makers, remember the intersections of institutions which value and collect such elements.

Technological advances, which are often hard-won through intense effort and an ecological price, are ever accelerating and reshaping our world. I struggle with anxiety about how I am shaped, and how I contribute in shaping. How is my regular use of technologies impacting ecologies I might not even be aware of? With things moving so quickly, what may

we have missed in our hurry to move on to something new? What happens when things which were thought to be dead and forgotten are brought back into view? Re-engagement of “obsolete” technologies may extend their usefulness, or even uncover new possibilities for use, but this revisiting of the past may also be viewed as complicit in creating a halo of sentimentality. I recognize myself in this accusation in some ways, fully admitting to my interest in utilizing vintage equipment, or equipment designed to mimic vintage capabilities. Historically, access to such equipment required deep institutional support for funding the creation, acquisition, use, and maintenance of many of the tools I employ in my studio practice. In my lifetime, the use of

professional quality audiovisual tools was financially limited to professional filmmakers, musicians, and academics. I grew up soaking in the stimulating stew that they made and distributed through television, radio, and cinema. Now, over a quarter century from the time I first viewed/heard/experienced such technological marvels, the affordability and availability of many of these older tools has reached a level that I can participate in. I temper some of my concerns of complicity in noting that I regularly rescue tools left for dead and thoroughly enjoy breathing new life into them. I believe my explorations matter since access to and use of these tools is new to me.



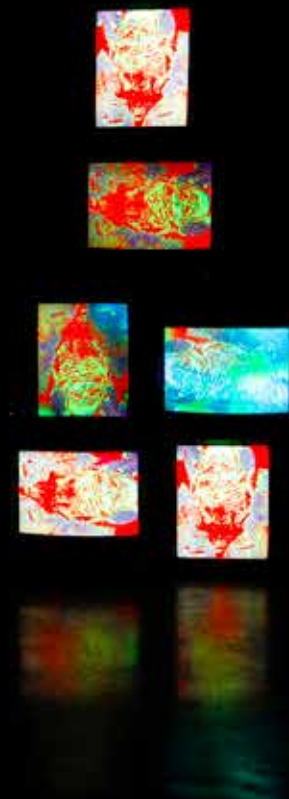
This page: Instructions for authoring DVDs used in *Barred Owl (Spiral Pyramid Form)*

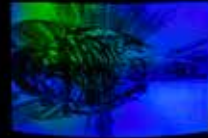
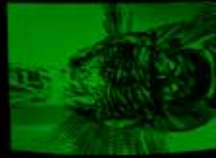
Pages 36-37: Installation view of *Peregrine Offering* (left, in image), *Re-Winging* (center, in image), and *Barred Owl* (right, in image)

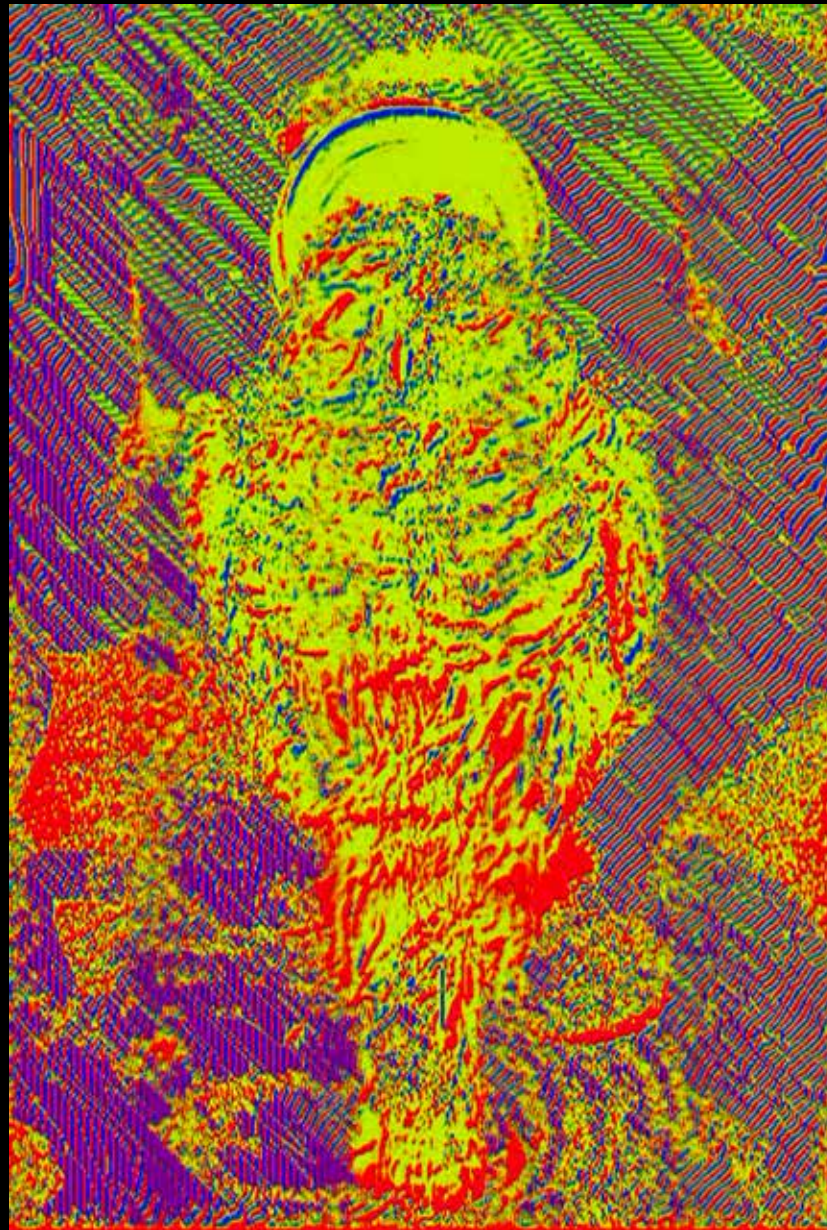
Page 38: Installation of *Barred Owl*

Page 39: Still from *Barred Owl*









Falcon Flight through Lunar Orbit Lander Issues

I worked in TouchDesigner with my professor, Eric Souther, to prototype an alternative arrangement of the six synced CRT screens.

We envisioned the screens arranged side-by-side in a horizontal line. A digital model of a falcon flies from one screen into the next, through a background of synthesized analogue video patterns.

The contrast of the older technology (CRTs) with the low-resolution, analog background and the high-resolution, computer-modeled falcon would explore the evolution and movement of technological advances, how they contrast or battle with each other, and how they are able to coexist.

With the outbreak of Covid-19 this alternate version of the sculpture remains as of this writing unrealized.







Peregrine Offering

These multi-media sculptures incorporate ceramic bowls—made in collaboration with Chris Alveshere, a gifted potter and fellow MFA graduate at Alfred University—with video projections mapped onto their surfaces.

Projecting colorful video onto these highly reflective colored bowls created an engaging challenge of composition since the material properties of the glazes greatly altered the light transmissions—enhancing the vibrancy for some colors of light while dampening or outright changing the color of others. Experimenting with what light reacted with which glaze was an unpredictable but engaging process of discovery and I am disappointed that Chris and I were not able to fully realize the complete set of red, green, and blue (RGB) bowls that we designed.

Creating a set of ceramic bowls that are glazed in RGB is of particular interest because it matches the colorspace I am accustomed to working with in my video synthesizer for pattern generation and coloring, as well as in projection and display of video playback. The black and white bowls we produced had somewhat more predictable results as alternative screens, behaving much more like the monochromatic screens of cinema. The colored bowls behaved in a much less predictable way, with projected colors that shifted hue, brightness, and intensity in numerous interesting ways. My initial research in

expanded cinema techniques is what eventually prompted me to work with RGB ceramic bowls, after working through a variety of other alternative screens, from salt to glass to mirrored glass to a variety of liquids and their surfaces. In this pursuit, the way materials either absorbed the projections or reflected them was endlessly fascinating and I anticipate much more research into these sorts of materials.

As hand-thrown earthen vessels, bowls can be functional and sacred objects, and are often decorated and designed for both practical and ritual purposes. In this series I am marking these bowls with moving light for my own ritual purposes and visual intentions. The falcon in the video was injured through an unexpected interaction with humans, and I invoke his image as a way of honoring his life and processing the dissonant energies I feel when confronted with his horrific injuries and loss of life.

The projection-mapped videos in and on the earthen bowls are of a live peregrine falcon (with human-induced injuries which compel it to live in permanent captivity to survive) moving his head from side-to-side, and a dead peregrine falcon's wing "flying" through a still-life of mirrored glass vessels and a week's worth of personally generated non-recyclable waste.

The flying wing, which I am moving through the air in mimicry of a bird's flight movements, celebrates his life and mourns his loss through imitation and reflection—reenacting his navigation through a hostile environment to symbolically bring him back to life for me. Through this installation of ritual objects I mourn the damage done while honoring the life prematurely lost. In highlighting the beauty I find while observing living creatures, which can usually only be observed in short bursts from far distances in the wilds, I seek to celebrate liveness and to encourage conservation.

These elements create, interact, and influence ringing feedback oscillations as generated and captured during studio-embodied reanimation rituals for synthesizer, camera, and video projection. The video-feedback recordings of studio ritual are then projected on the sides of the bowl that is placed under a freestanding sculpture of wood and metal suspending a downward-facing projector over the bowl which is resting face down atop appropriated wooden speaker enclosures. An uninterrupted, clear view of the falcon's head is presented in the central footed portion of the vessel, allowing for longer, clear views of the bird looking around its place of captivity.

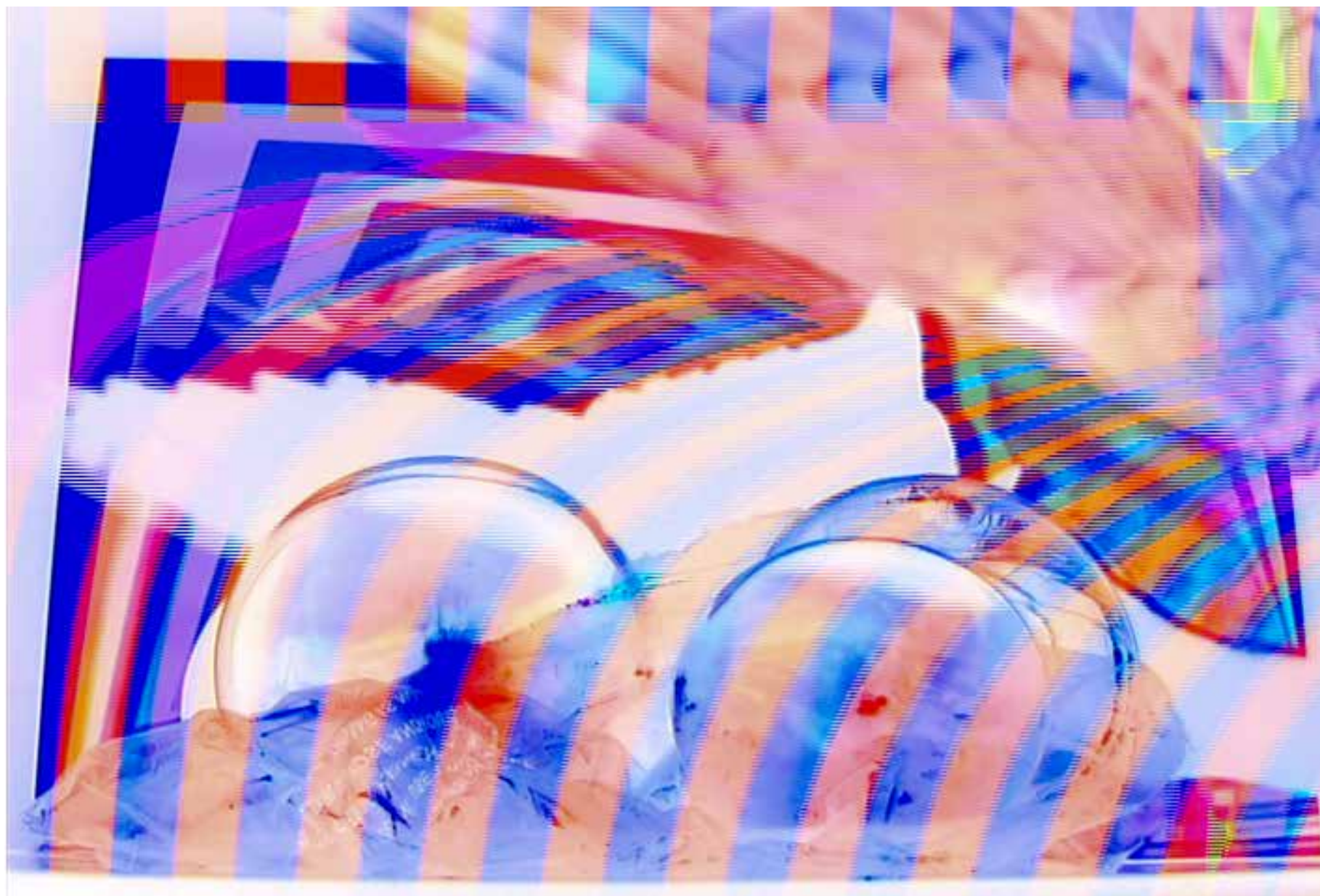
The same video of the falcon's head is combined with synthesized visual static, modulated by field recordings

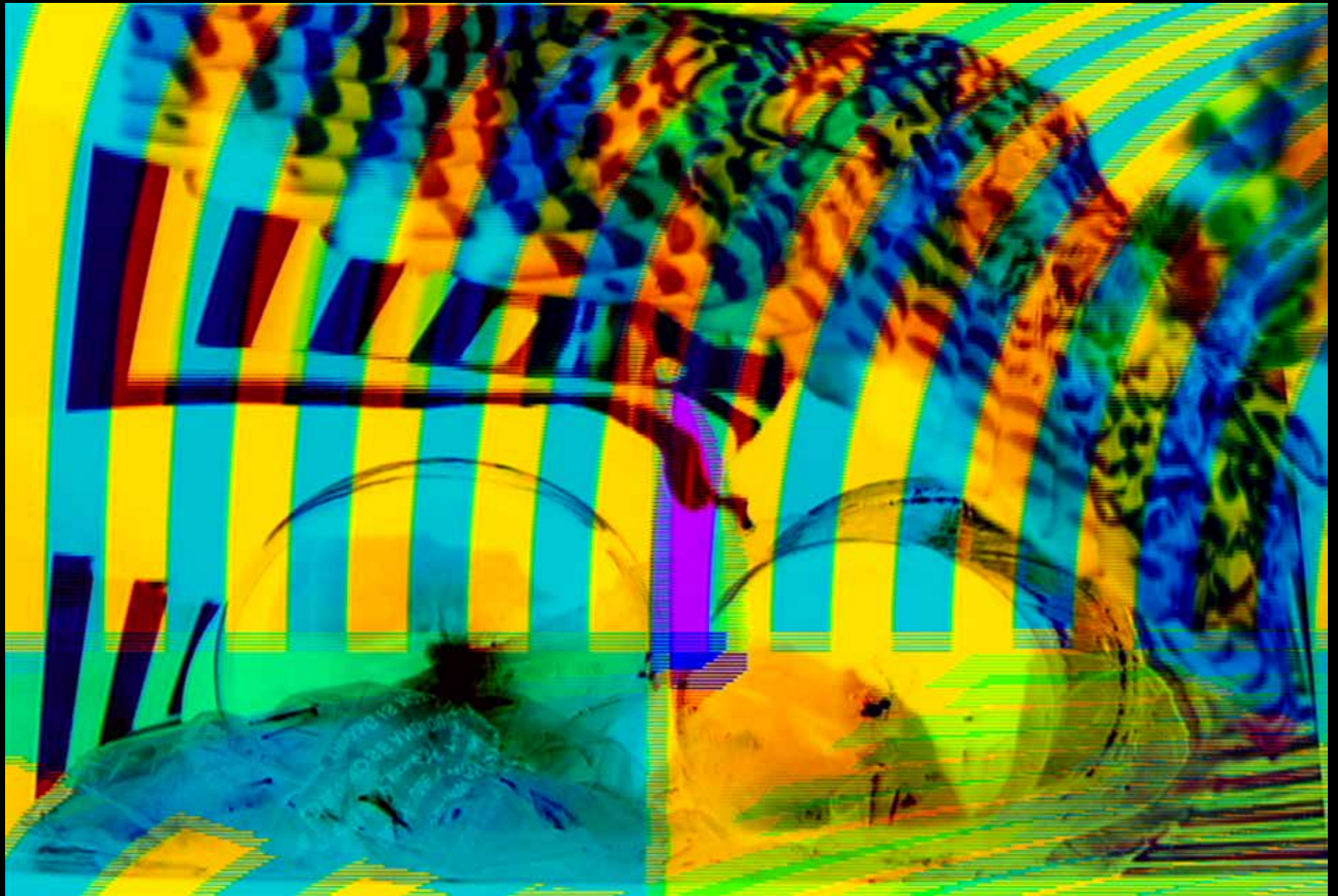
of its own territorial calls, and projected onto the speaker cone surfaces. The positioning of the foot on the bowl and the two speaker cones outline a triangular shape, and the downward-facing bowl itself forms a sort of pyramid on the wooden plinth of the speaker enclosures.

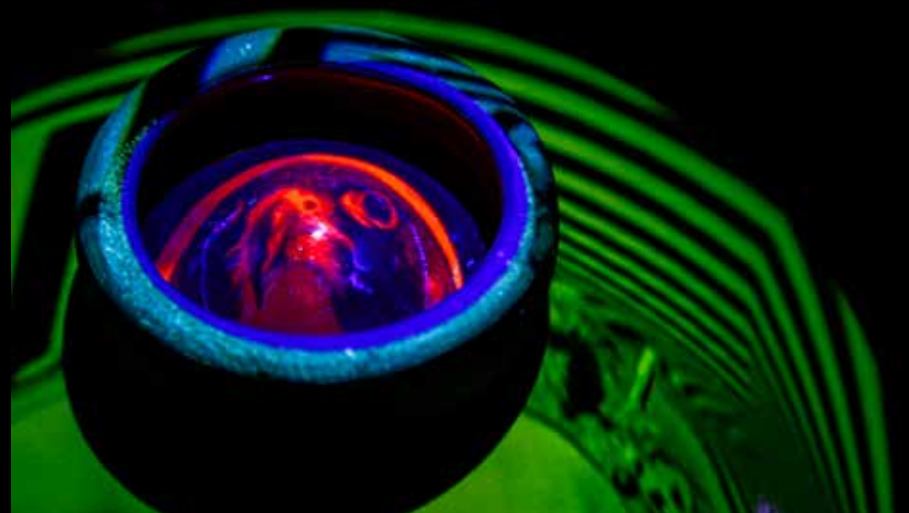
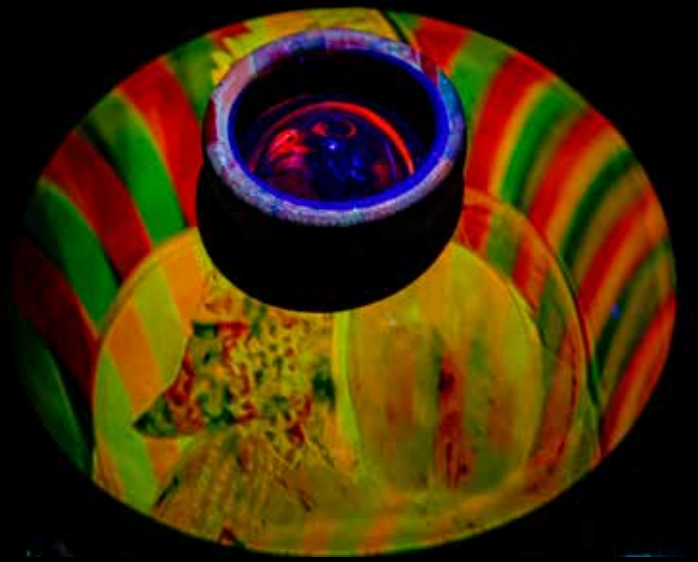
Within a very darkened gallery, these sculptures encourage movement through the space for closer experiences with the glowing surfaces. The speakers play a combination of field recordings of local birds, pastoral environments, and synthetic sounds which sonify the various wild sources. Gallery-wide this multi-channel soundscape is immersive, pushing and pulling one by the ears to explore the gallery ecology to better hear specific details which are calling out—much in the same way one might hear interesting sounds and seek a closer view when exploring the wilds.

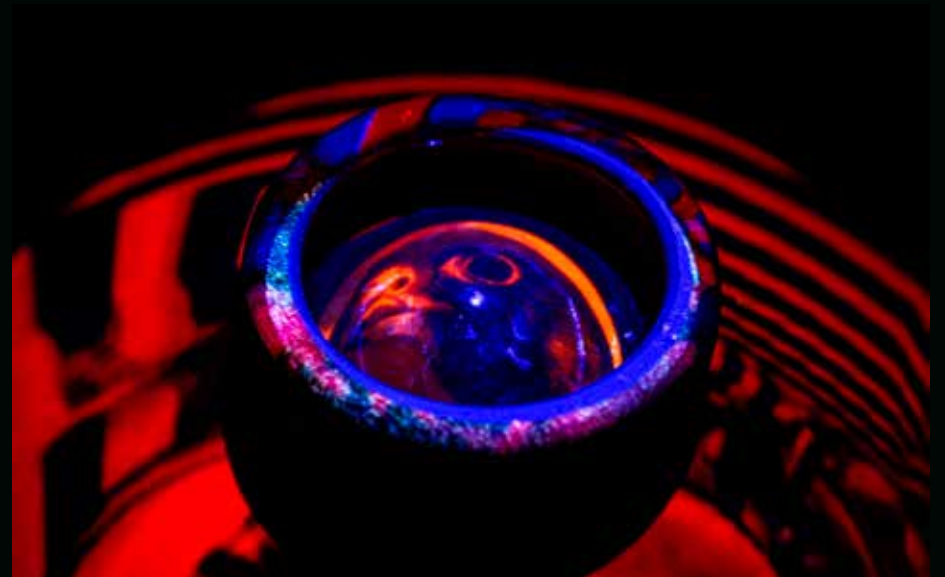
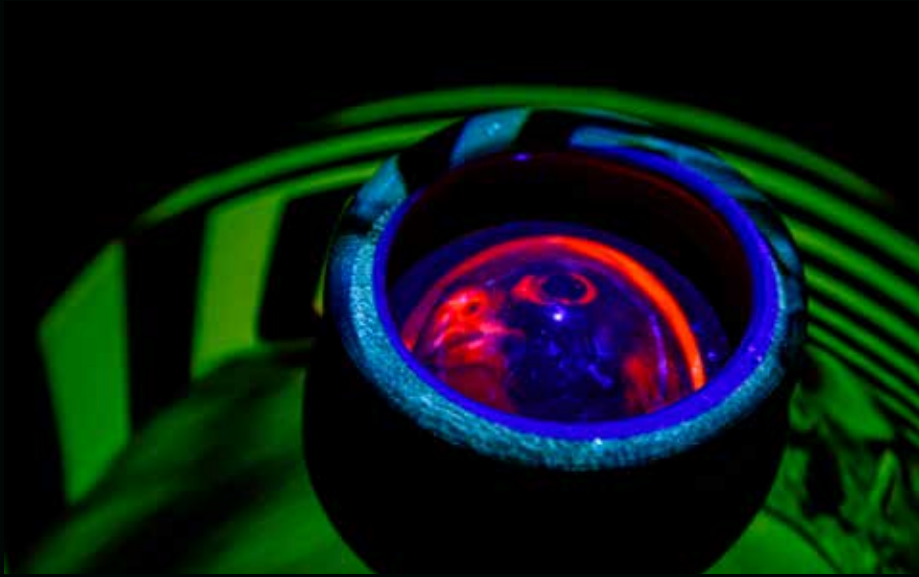
Page 47: Installation of *Peregrine Offering* (left, in image) and *Re-Winging* (right, in image)
Pages 48-55: Details from installation

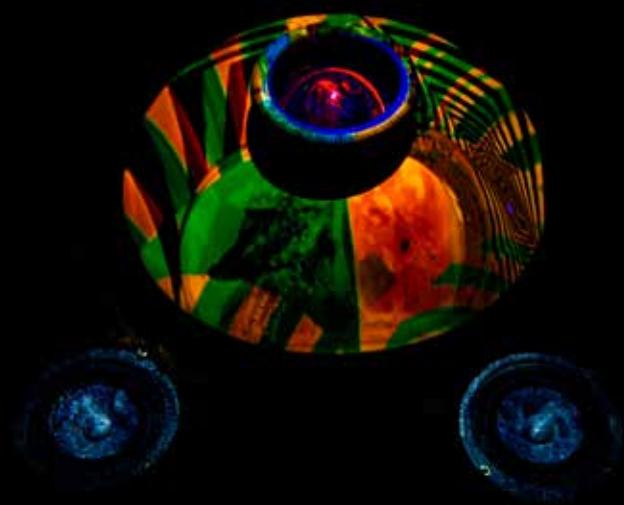
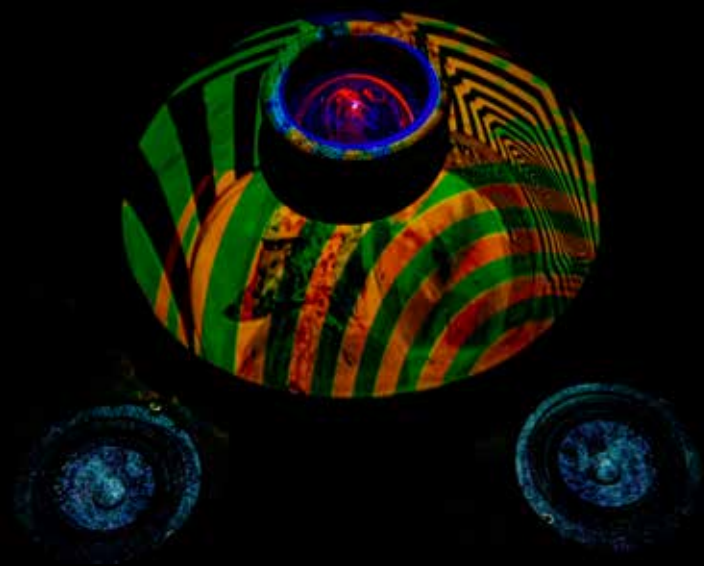
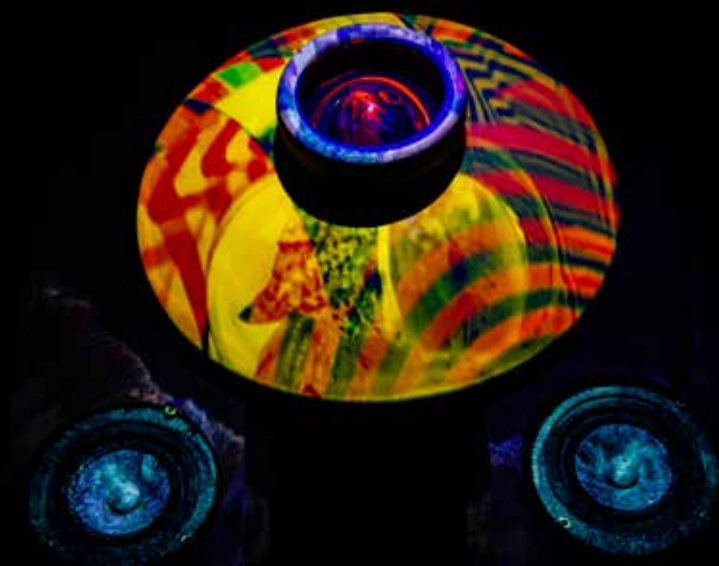


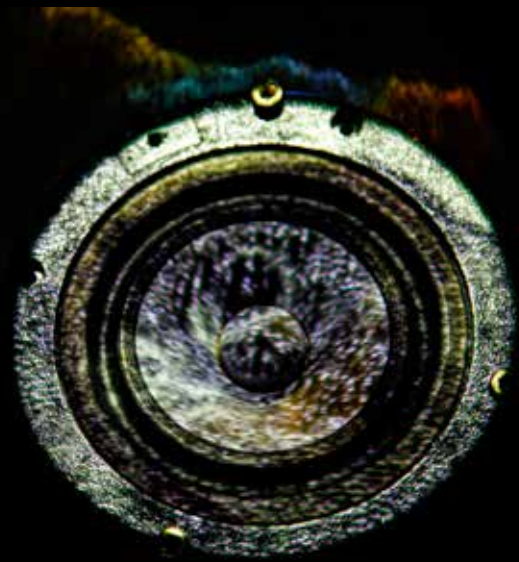
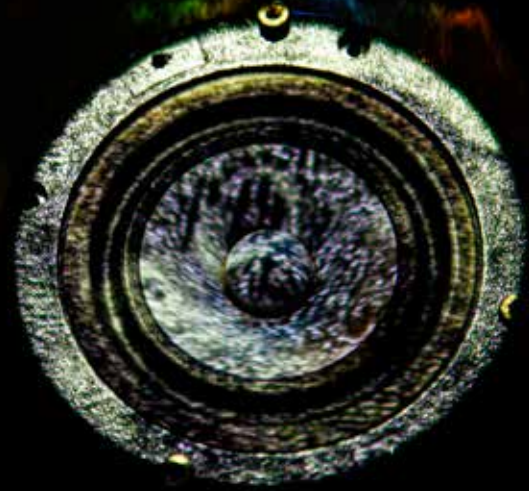
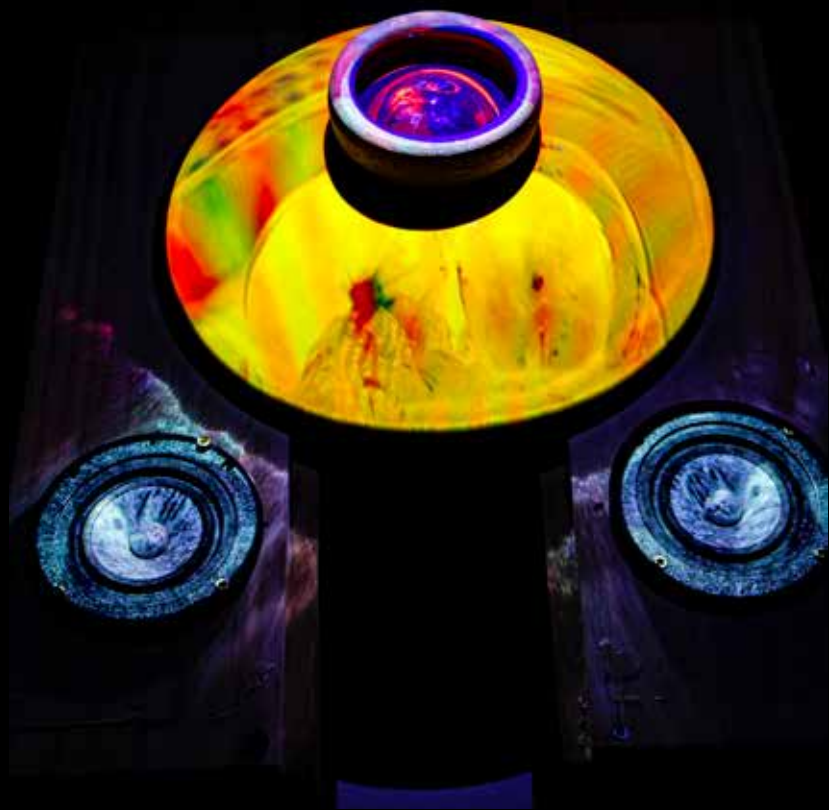


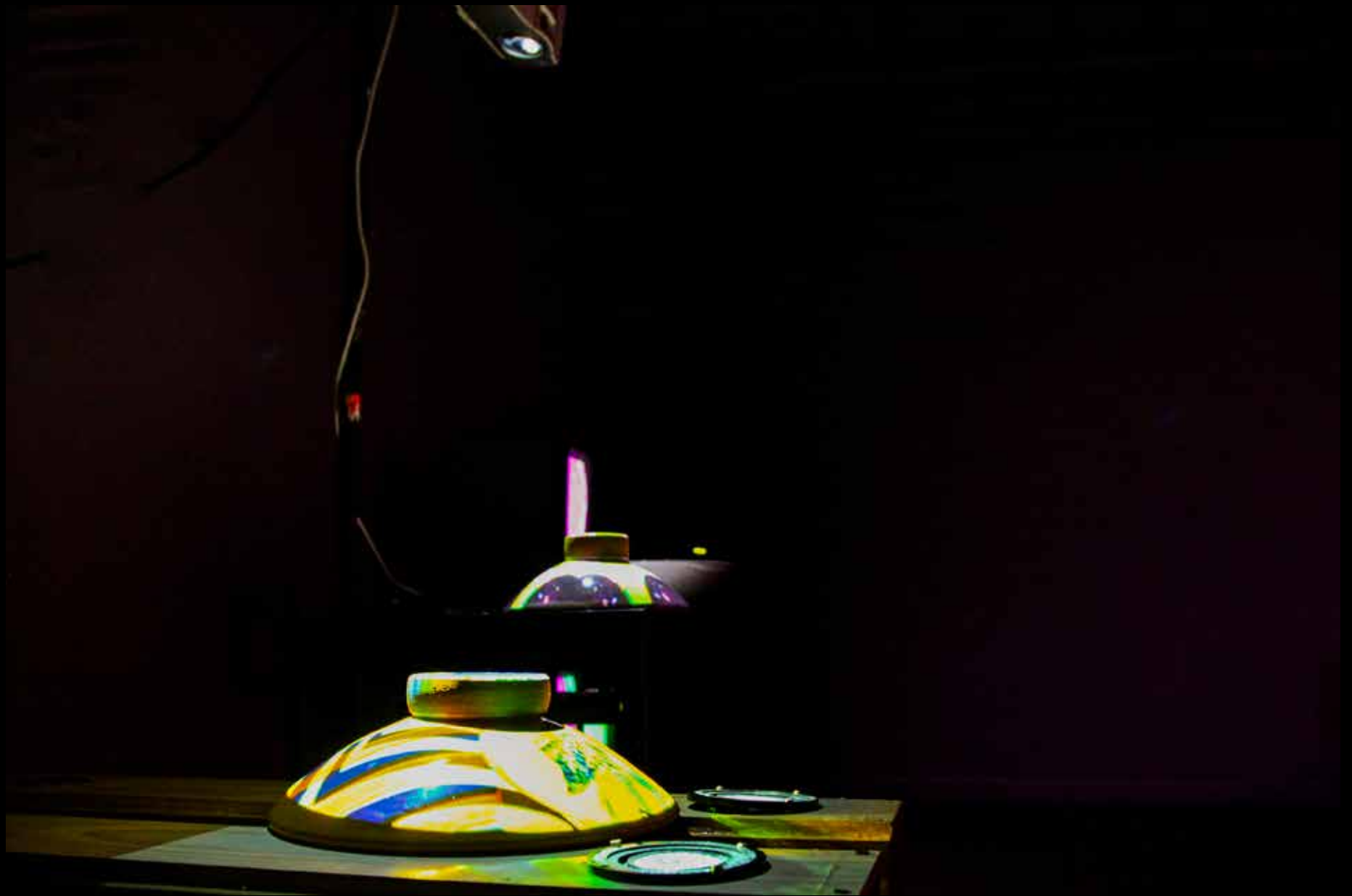














Re-Winging

Re-Winging introduces a layer of performative and collaborative liveness into the sculptures within the installation. The pieces featured on previous pages use pre-recorded audiovisual materials for projection and playback. Re-Winging features visual geometries that are created live and in real-time through a hybrid analogue/digital audiovisual synthesis system.

The audiovisual system processes incoming audio information to generate and shape video patterns which are then composited and keyed together with in-camera video footage of wild bird habitats like trees, mountains, and water.

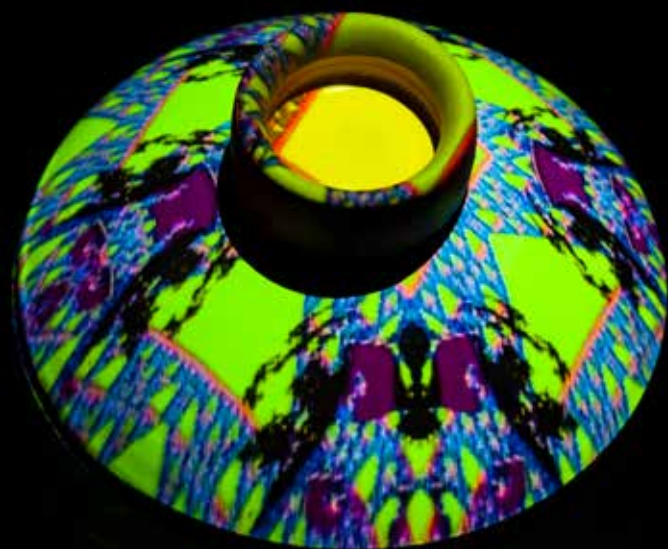
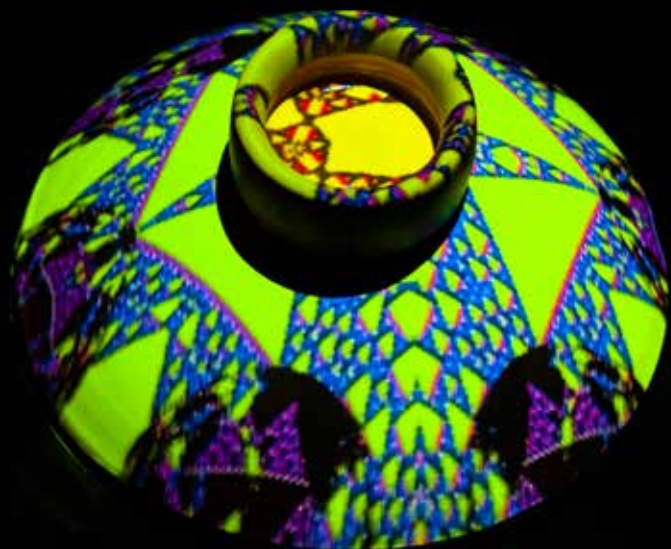
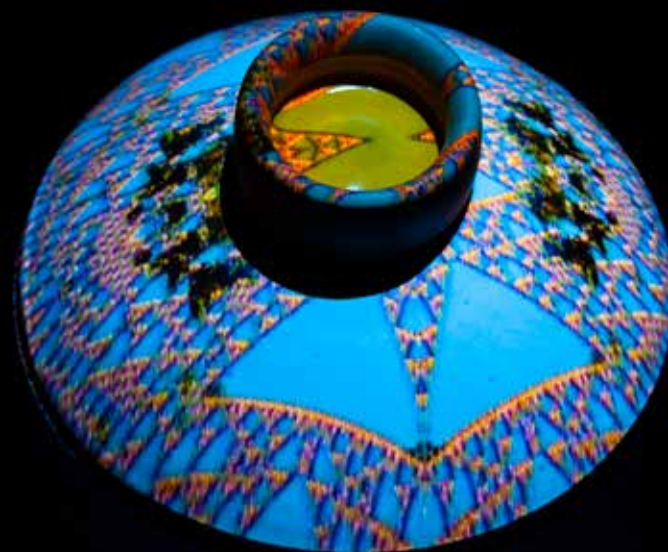
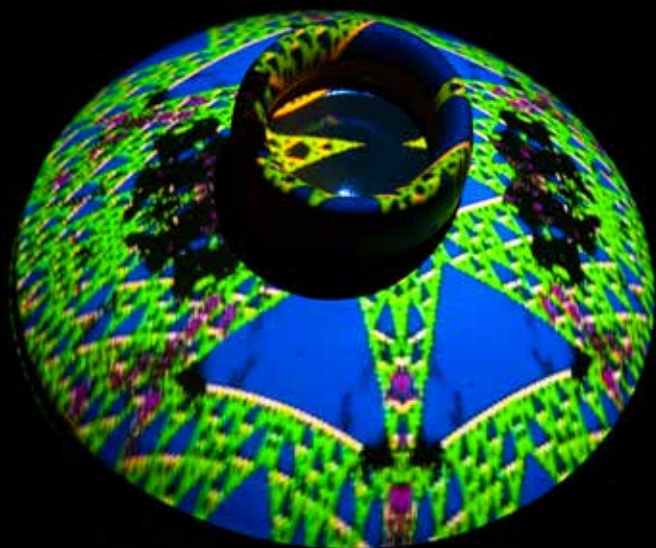
Microphones placed in and around the sculptures and throughout the gallery also capture live sounds created by visitors within the gallery space. These sounds are transmitted into the synthesizers which then responsively shape the colors and patterns that are projected onto the ceramic vessels.

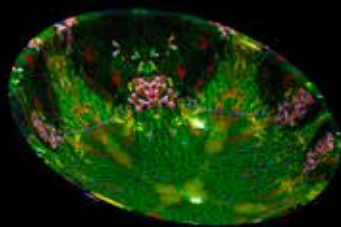
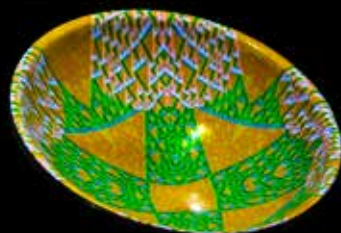
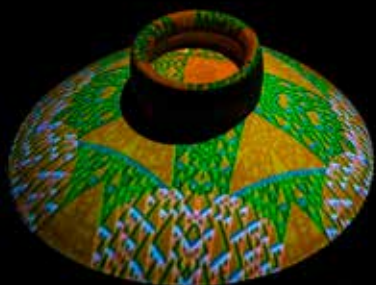
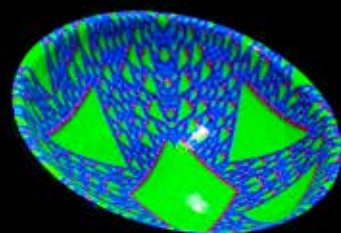
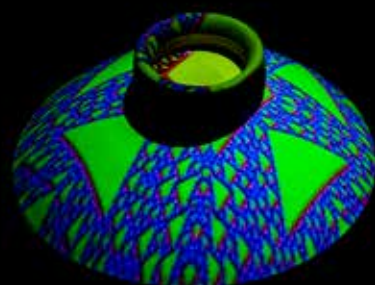
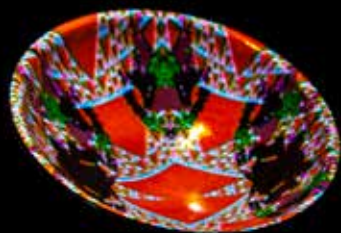
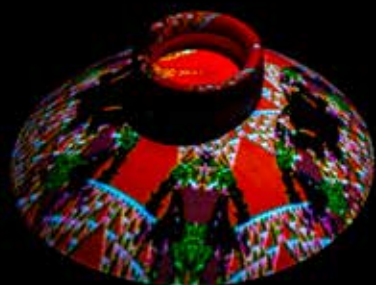
A visitor's presence activates a real-time collaboration with the gallery soundscape of field recordings, live-synthesis, and their own movements and voices. This system offers an opportunity for participatory resonance that activates the audiovisual material projected on the vessels.

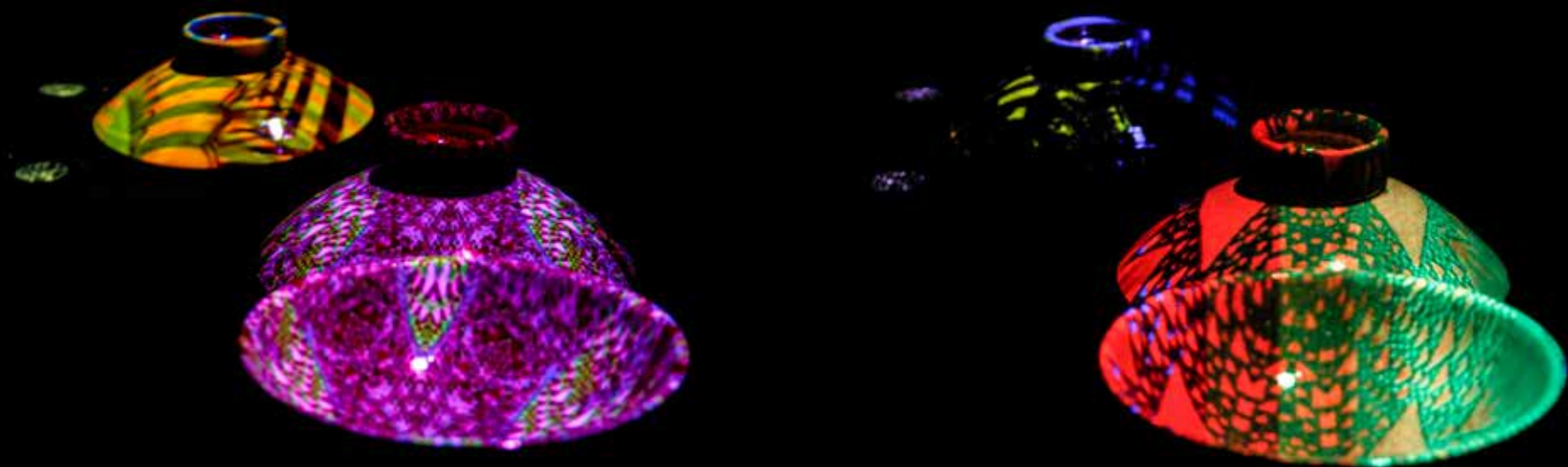
This piece seeks to recreate the sort of energetic resonance I feel when working in the field. Through this experience, visitors impact the ecosystem of the gallery space in a similar way to how the ecologies of the wild world are impacted by the presence and activities of humans visiting there.

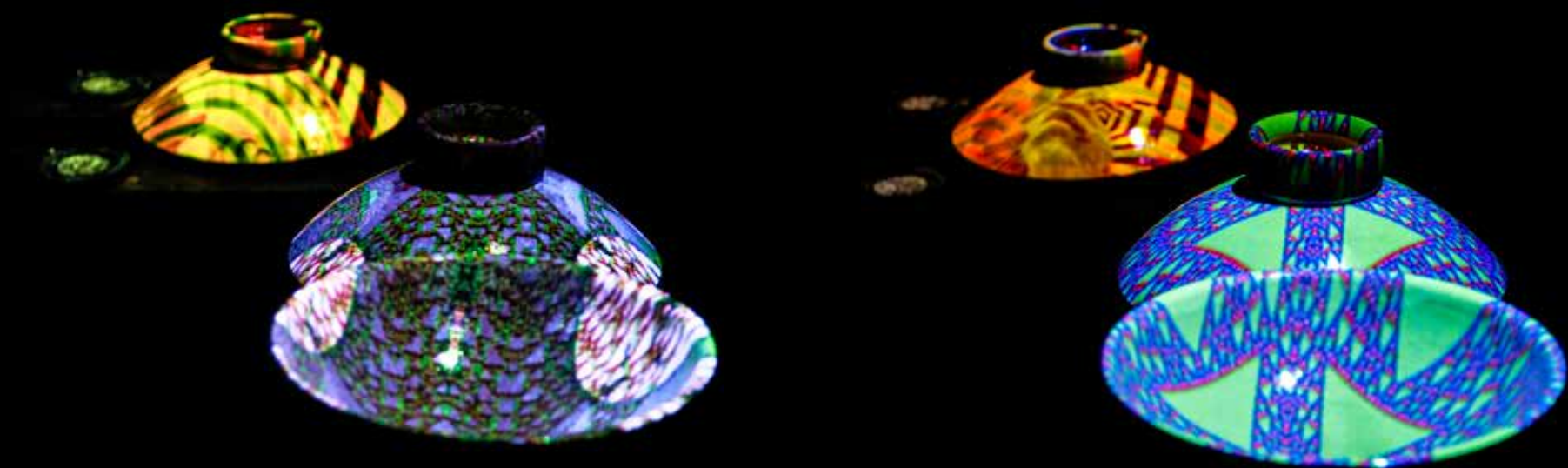


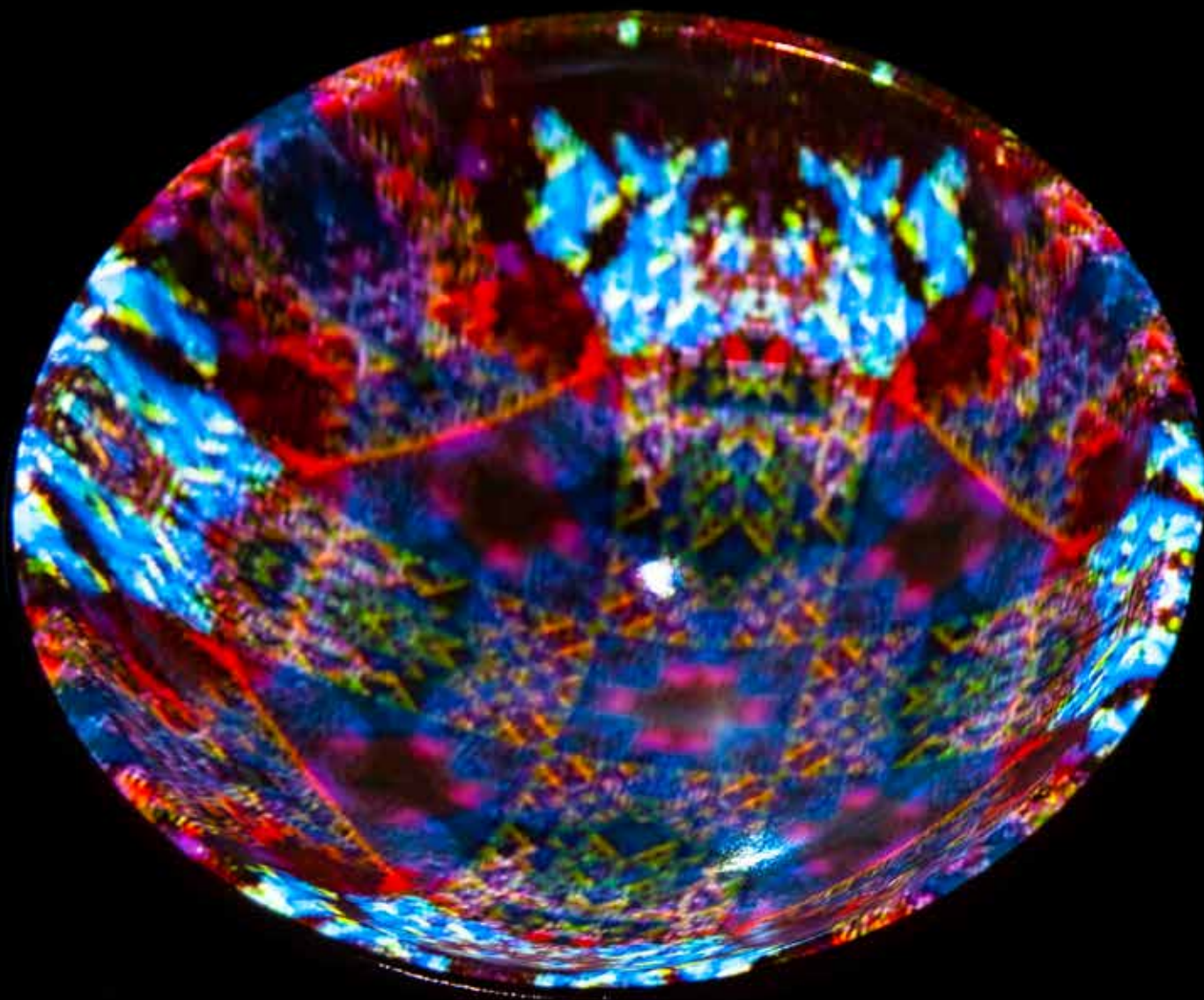
Pages 57-59 and 62: Installation view of real-time video synthesis projected on/in-to the bowls of *Re-Winging*
Pages 60-61 and 63: Bowls of *Re-Winging* (front, in image) and *Peregrine Offering* (back, in image)













Bowl for Bubba Ayoub (RGB Laser Studies)

This is another live and in real-time interactive sculpture, which combines an array of visual pattern-generators through multiple self-influencing feedback paths within a system for the transmission, reflection, and capture of red, green, and blue light. The system starts with a synthesizer that moves the lens of a voltage-controlled RGB laser beaming into the concavity of a deep-black glazed earthenware bowl.

A video camera focused on the bowl captures reflections on the glazed surface and the resultant video footage of the bowl is fed back into the synthesizer to further influence its movements. The video is then composited and keyed with a photograph taken during an earlier studio ceremony for a Barred Owl and red bowl. The photograph is processed through and animated with OpenGL GLSL code running on a module in my synth. This module also receives feedback signals from the video and laser interactions that are cycling through the system. The feedback actively reshapes the resultant shape of the image of owl and bowl—stretching, pulling, and contorting it in real time, through continually changing energies in the system.

The resulting video is transmitted to a single CRT viewing monitor of the type used in *Barred Owl (Spiral Pyramid Form)*. The CRT screen shows a processing that is decidedly more hybridly digital than the more purist take on traditional

analogue synthesis and processing described earlier.

This hybridity is further complicated through destabilizing the video's frame synchronization with the deliberate introduction of modules geared towards glitchier results. The unpredictable nature of sync-shredding, by feeding unexpected and "out-of-bounds" signals into the system's synchronization stream, is met with additional unexpected phenomena unleashed through the influence of the system's multiple feedback loops which generate and shape the very signals which destabilize the sync itself.

The laser, as reflected in the bowl, reveals energies contained within a vessel; a container holding light and darkness. This play of light and dark as captured by the camera, processed through the synth, and shown on the CRT crackles with hypnagogic feedback loops like the currents of energy at play in and around us. The energetic responses and movements in my opening performance piece explored similar ideas by delineating spaces for reflection and movement through lights and darks. This piece was designed as a spatial-dynamic system for the more energetic types of entities and phenomena embodying more active and vigorous qualities. This likely feels different than the pieces on the previous pages, and stands in stark contrast to the photo-realistic precision of the prints we will explore in the next section.



Installation of *Bowl for Bubba Ayoub*

Page 67: Stills from Structure OpenGL GLSL module monitor screen
Pages 68-69: Stills from CRT monitor

IMG1

EFX1

OUT



CLR < PREV NEXT > LIST

IMG1

EFX1

OUT



CLR < PREV NEXT > LIST

IMG1

EFX1

OUT



CLR < PREV NEXT > LIST

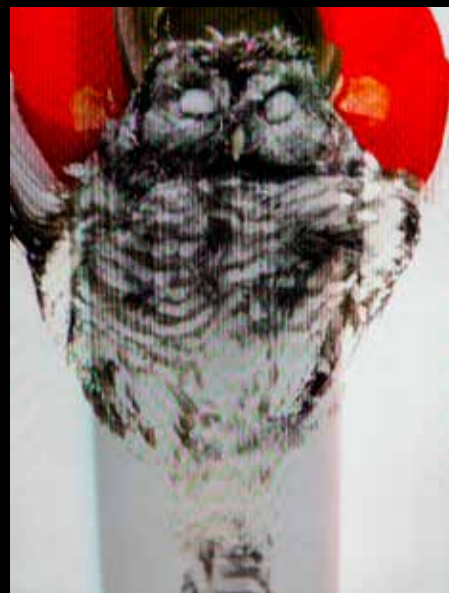
IMG1

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OUT



CLR < PREV NEXT > LIST



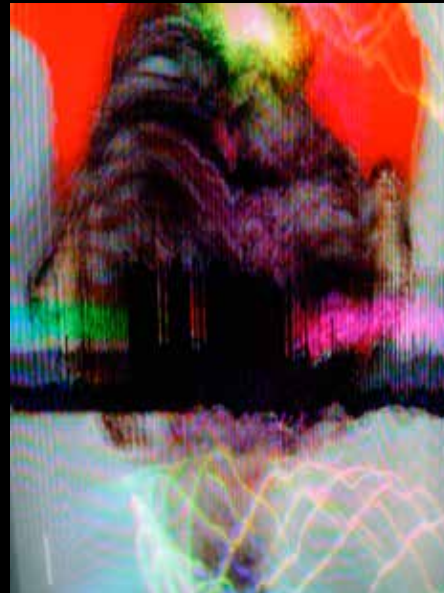
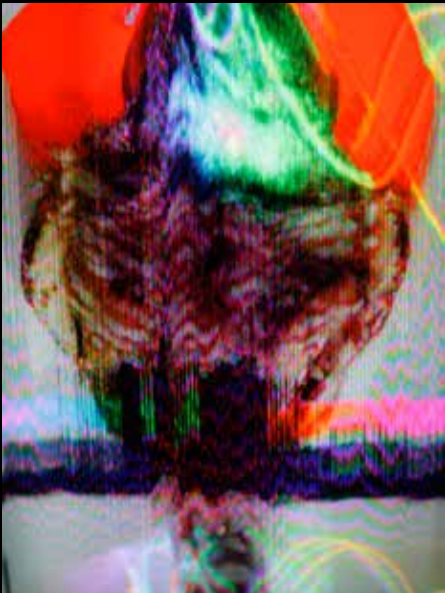
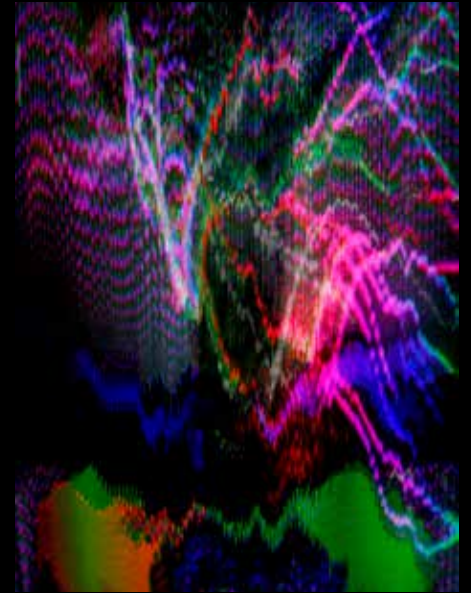


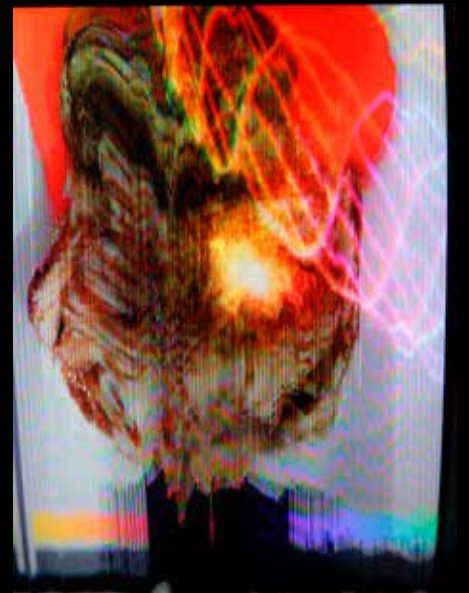
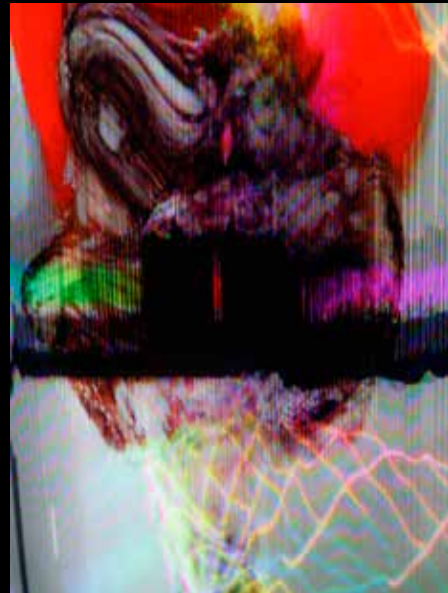
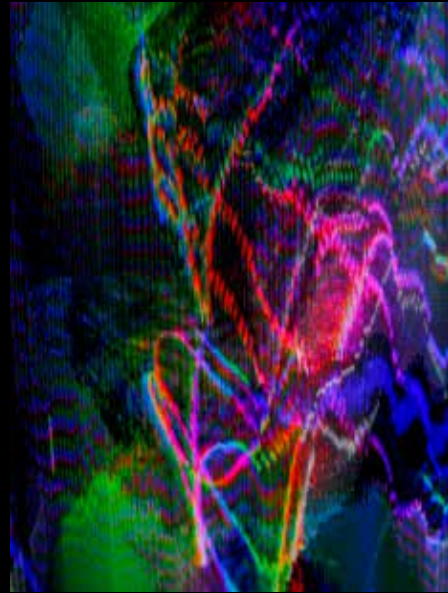
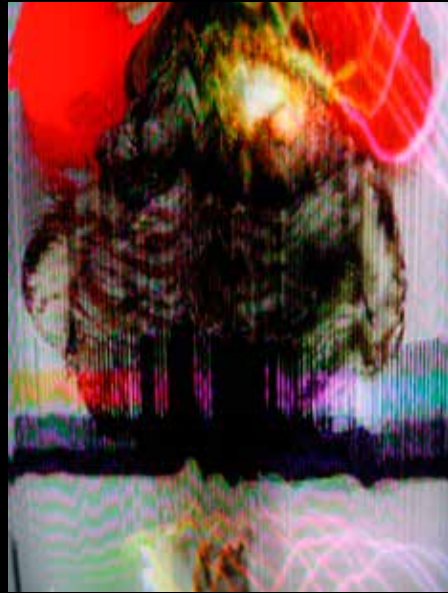
Pages 71-73: Installation of laser projected into black ceramic bowl on coiled cable
Pages 74-75: Stills from final output monitor with all feedback paths composited











Prints

So Below, As Above

These prints offer detailed views that are larger and in much sharper focus than we could ever perceive with our own biological vision. This direction into a kind of hyper-realism was possible through studying a digital processing technique that I call “The Scheer Moth Process” (thank you, Joseph!) where multiple photos, each with unique focus points, are layered and stitched together to create a composite image that is more clearly in-focus than would be possible to capture in a single exposure... or to even see with the naked human eye.

The highly detailed views of the birds shown in these prints can only be captured with a very still bird. These birds are ultimately stilled in death. Their collection and preservation allows for closer examinations of their biological components.

In the earlier video material, I sought to bring back life, movement, and energies that I felt were missing. With these prints I seize a rare opportunity to look very closely within a meditative and still space.

Photography was a big part of my undergraduate experience, and I have not engaged in copy-stand photography for at least 30 years—and certainly never with such a high-quality lens and digital camera. These explorations presented a welcome opportunity to return to a photographic process,

but enhanced with much more advanced digital technology for both creative capturing and post-processing.

These prints appear very “real” and “natural”—presented raw and seemingly unaltered by technology. They don’t look particularly processed, especially when compared to the other more “synthetic” pieces in this show. But the secret is that it is only through high-tech cameras and highly stylized post-processing of the photos that the viewer is able to see the material so clearly and so magnified. Many of these images are printed with physical dimensions which measure many times larger than the actual birds themselves. They are literally larger and clearer than “real life.” As such, these images may feel like some sort of reward—a precise realism gained after catching only glimpses of recognizable material throughout the abstractions of earlier pieces in the show. Actually, these images are perhaps even more abstract than anything else seen in the exhibition. They are presented with more precision and deliberate structuring to appear to be more like things we might already be familiar with from our experiences in consensual reality.

The level of abstraction brought about by a precise ordering and arrangement moving towards hyper-realism may become even more obvious as additional objects are added to the photos.

The bowls themselves, made with a variety of shapes, colors, lines, and volumes, offer significant compositional possibilities for symbolic arrangements. As vessels, they can also hold different elemental items (palo santo, sage, a speaker cone, candles, liquids, and a Peregrine Falcon wing) pertaining to their ritualized usage.

So Below (Ishkodic Offerings Red & Yellow and Black & White Mirrored) documents a significant portion of my creative research and practice, which has been helped and shaped by many generous teachers and collaborators.

My earliest thoughts on alternative screens began with embodied research into the history of expanded cinema. Art historian and professor Laura McGough encouraged me along this path and I enthusiastically explored possibilities. This research led to me learning to blow glass with Karen Donnellan and mirroring my primitive forms. An entire body of earlier vessels with projections were made and exhibited, but my limited abilities in blowing glass only generated exceptionally thin forms that are very fragile. During my process of blowing, cooling, and mirroring the forms, catastrophic breakage occurred in well over seventy percent of what I generated. So I collaborated to design and build with someone greatly skilled in working glass. The beautiful cylindrical vessel (with strong and well-made walls) pictured in the center of the image was blown and

worked by sculptor Erin Hoffman, a fellow MFA graduate at Alfred University.

I mirrored the cylinder with the help and teaching of Garrett McGowan and Ann Rossington, who graciously offered to not only train me in the process of mirroring, but provided me with the necessary materials (including actual silver!) all while making me feel welcome and supported in their chemistry lab.

After working with a variety of glass vessels of varying shapes and sizes that I mirrored on the inside surface, I grew frustrated in my attempts to use the glass forms as screens to project video in and on. I found myself wanting wider, more open forms to explore. Erin and I intended to continue research in this direction, but ran out of time. I hope to have an opportunity to work with her again in the near future and pick up where we left off.

The speaker in the image on page 107 references my life-long pursuits in sound exploration. My mother, Carolyn, raised me as an active listener and performer and I'm thankful for her patient listening and interest over the years. Alfred University itself presented a dream opportunity to learn from Andrew Deutsch, who I have eagerly listened to in recorded form since I discovered his vast array of output in the 1990s. Andrew always listened closely and challenged

me to explore a staggering assortment of sounds and methods for their creation and presentation. He perhaps influenced me most in my growing understanding of sound as object, or sound objects, which can be clearly seen and heard in this body of work—and he gave me the speaker pictured.

I am grateful to my ornithology professor Frederick Beaudry and the Alfred University ecology program for the use of their collection of avian museum skins. The opportunity to study with Fred, and to process the Peregrine with him really opened the floodgates of this project. The historical foundation of this bird skin collection was gathered and prepared by Mark Klingensmith's father.

I love the connections that this research makes between Alfred the institution, its mission, and the people who make it happen.

For all prints, dimensions variable but generally 24 x 30-42 inches and printed on Xuan Paper

Page 82: *So Below (Scan)*

Page 83: *As Above (Scan)*

Page 84: *So Below*

Page 85: *As Above*









Page 87: *So Below (Lesser/Median Coverts)*
Page 88: *So Below (Leading/Trailing)*
Page 89: *So Below (Axillars/Humerus)*
Page 90: *So Below (Primaries)*
Page 91: *As Above (Primaries)*
Page 92: *As Above (Bend/Humerus)*
Page 93: *As Above (Coverts/Tertials)*















Page 95: *Eastern Screech Owl (Front/Sclerotic Rings)*
Page 96: *Eastern Screech Owls (Front/Down / Back/Up)*
Page 97: *Eastern Screech Owls (Front/Down / Front/Up)*
Page 98: *Barred Owl (Front)*
Page 99: *Barred Owl (Back)*
Page 100: *Sharp-Shinned Hawk (Front/Sclerotic Rings)*
Page 101: *Sharp-Shinned Hawk (Grasp)*
Page 102: In studio, side-by-side comparison of museum skin and print



Alfred Univ. Dept. Biology
Screech Owl, Eastern
Otus asio ad. ♀
coll. C. Klingensmith
#537







Wgt. 275g. Length 45cm
wing up 40cm
wing down 30cm
tail 23cm
upper mandible 13mm









Page 104: *Ishkodic Vessels (Red & Yellow and Black & White Horizontal)*
Page 105: *Ishkodic Offerings (Red & Yellow and Black & White Horizontal)*
Page 106: *So Below (Ishkodic Vessels Red & Yellow and Black & White Mirrored)*
Page 107: *So Below (Ishkodic Offerings Red & Yellow and Black & White Mirrored)*
Page 108: *So Below (Ishkodic Vessels Red & Yellow Dyad)*
Page 109: *So Below (Ishkodic Vessels Black & White Dyad)*
Page 110: *As Above (Ishkodic Vessel Yellow)*
Page 111: *As Above (Ishkodic Offering Red & Yellow Dyad)*
Page 112: *Barred Owl (Red Rest)*
Page 113: *Barred Owl (Red Diagonal)*
Page 114: *Eastern Screech Owls (Black & White Feet First, Head Down)*
Page 115: *Eastern Screech Owl (White Grasp)*
Page 116: *Eastern Screech Owls (Yellow Lemniscate)*
Page 117: *Ishkodic Vessels (Red & Yellow and Black & White Diagonal Cluster)*

































Left: Wheel-working a bowl with potter Chris Alveshere in his studio

Above: Copy-stand photography setup in my studio

Right: Bird skins stored in the archives of the Alfred University ecology program

Conclusion

Because I work with technologies that are in a constant state of evolution and often manufactured with planned-obsolescence in mind, much of my artistic practice is concerned with the impact that consumption at such an accelerated pace has on our collective psycho-ecology. I also consider how continual exposure to energetic transmissions all around us—from both easily noticeable and less obvious entities—impacts our collective experience.

My artistic practice moves in and around the resonances and dissonances that arise when confronting questions about my own privilege, personal responsibility, and agency in the face of inequality and complex global issues. I puzzle over the ever-present cycles of living and dying, beginnings and endings, “advances” and “obsolescence,” and I embody it all within the specific challenges of trying to better navigate my own personal Now. Making sense of this particular ontology can be uncomfortable, and my impulse for response starts with this dis-ease and moves through me in intentional practices to process it.

I often don’t know how to respond to these psychological discomforts. They can be overwhelming. But I find that sitting with them, holding space for them, and really feeling them helps. In these pieces I am exploring my responses to these feelings and experiences through an intermingling

of old and new technologies—reflecting the wild world and the synthetic. This is an uneasy space cognitively—how do the commercial aspects of technologies I use impact the wild subjects shown within my work? Such things are not easily resolved for me.

Beyond my own considerations, these pieces can be viewed more simply as colorful and beautiful objects, eye-catching and interesting to explore, in much the same way that humans may have at least a surface regard for the wild world. But similar to the wilds, the enticing facade often conceals considerable tensions within the ecology.

In this exhibition, there is space to consider the rituals and practices we may carry to help process the tensions that are experienced through the frequent changes encountered while we’re living life. These changes can be negative and positive . . . sometimes both at the same time. Ideally, in developing a growing awareness of how we interact and impact our environments, we may better understand our own contributions to the co-creation of realities.



Test prints outside of Immersive Gallery

Creative Practice and Embodied Research 2018-2020

Chronological Record of Audio and Visual Output

Chronological Record of Audio and Visual Output

In the two years I spent at Alfred University during my MFA program, I was continually exploring.

The majority of my creative output derives from my material studies in audio and video synthesis. Both forms of synthesis find output in their singular modes, but are most often combined into audiovisual hybrids where one form influences the other, provoking and responding to shifts and changes.

Similarly, drawings and writings often morph into prints and performances.

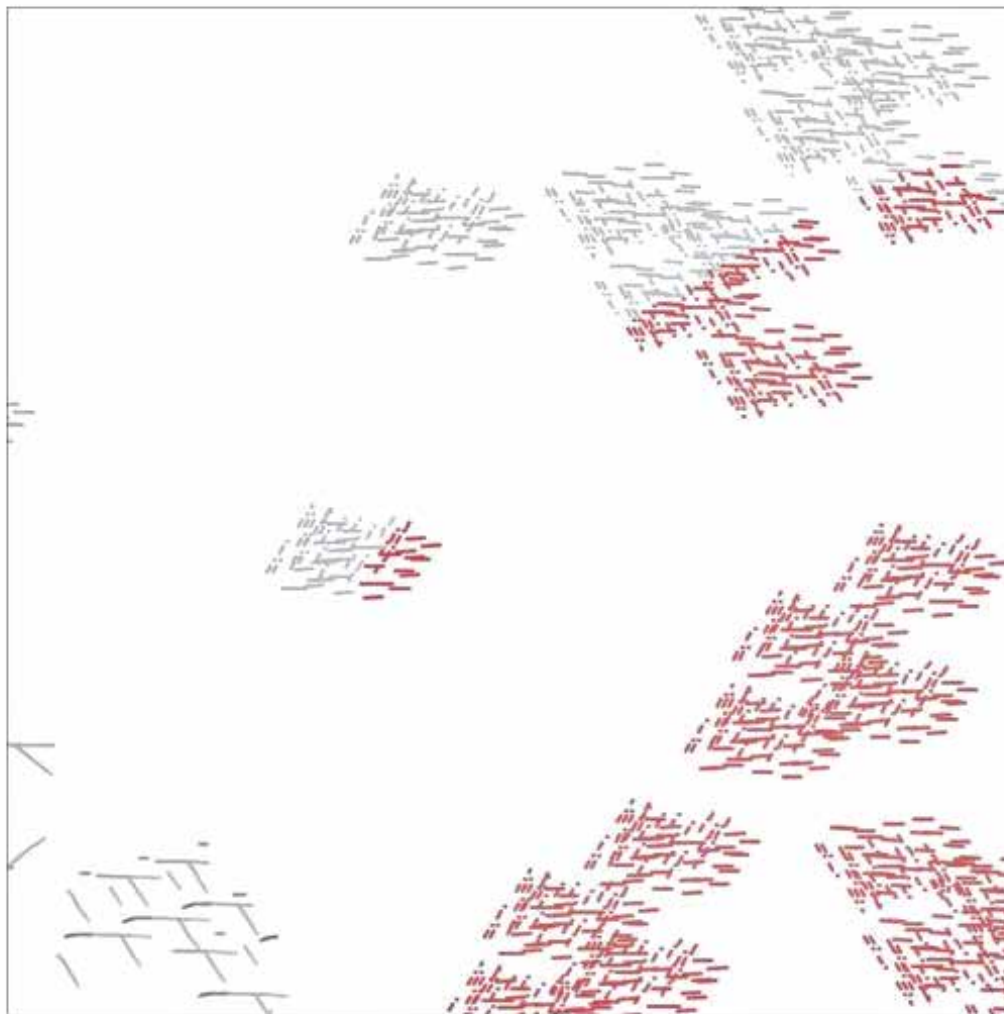
All output is considered combinatorially for possible confluences through additional processing, performativity, and presentation.

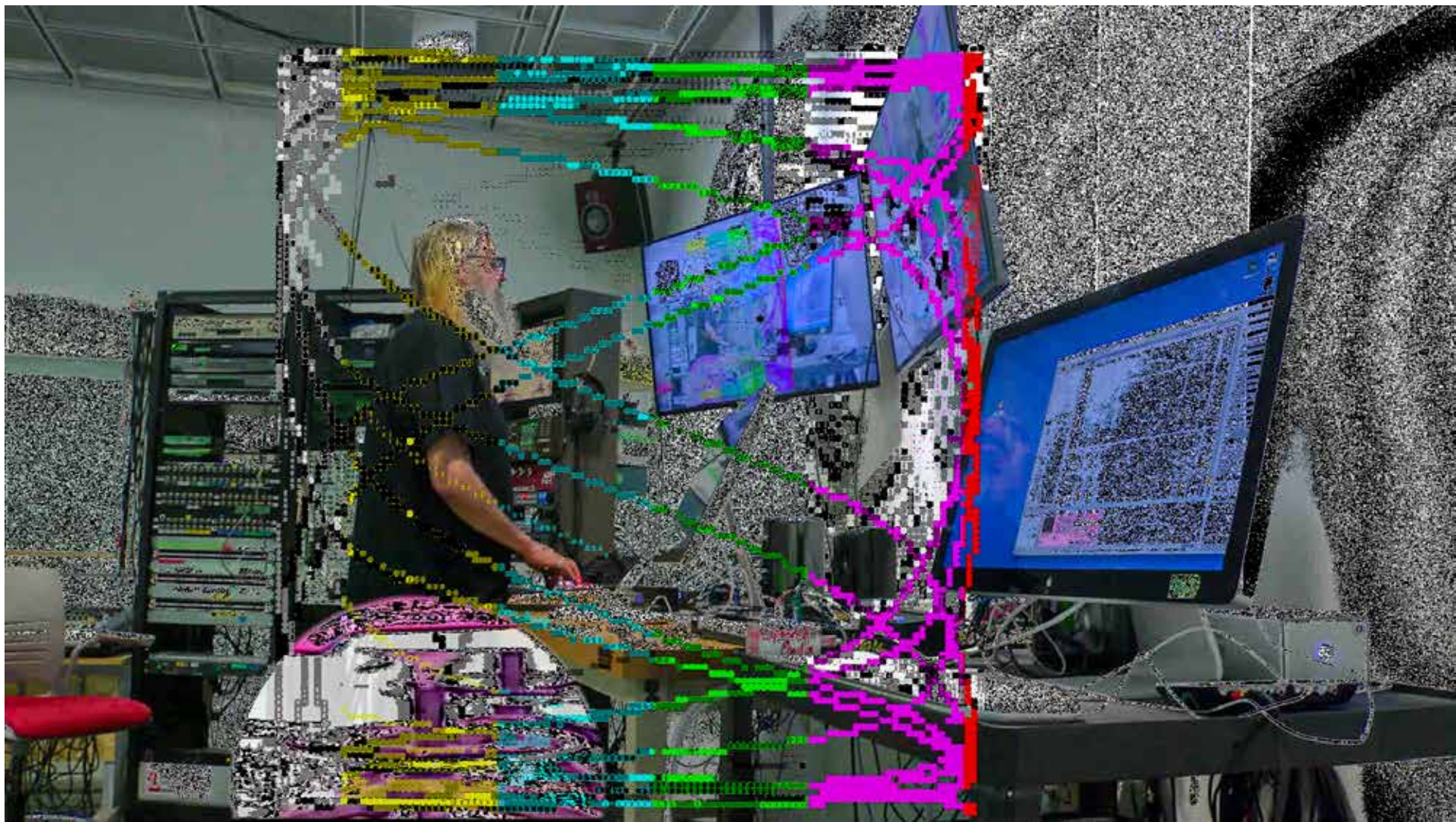
The following pages are a chronological catalogue of accumulated output between 2018 and 2020.



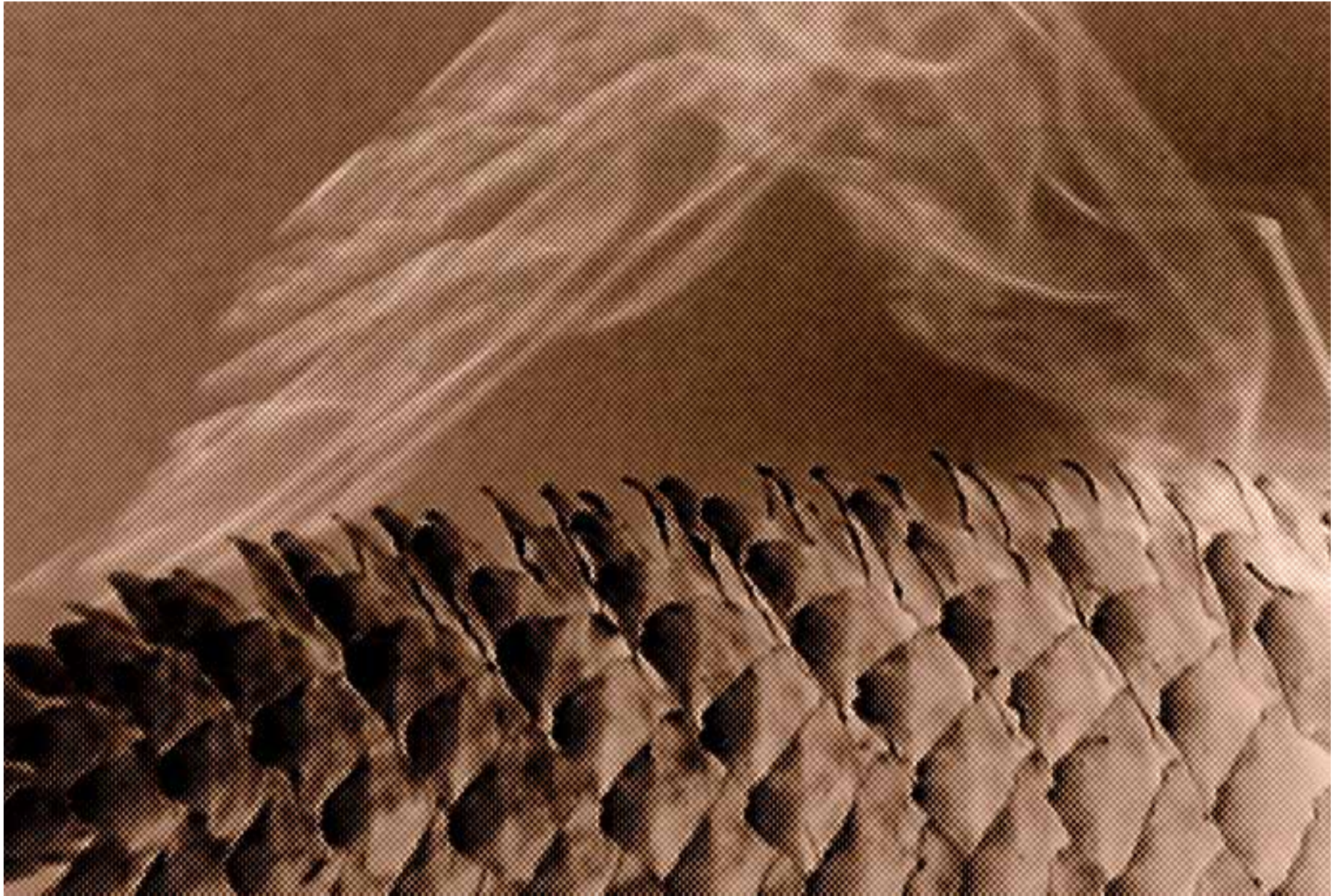
Artist talk during presentation of *Fragile Vessels*

Dawn Spear





The Key's the Thing, 2018, single-channel video, 8:11 minutes





Installation view of *Evolving in the Presence of Fire*





Train, 2018, single-channel video, 2:44 minutes

Crane (disquiet0350)



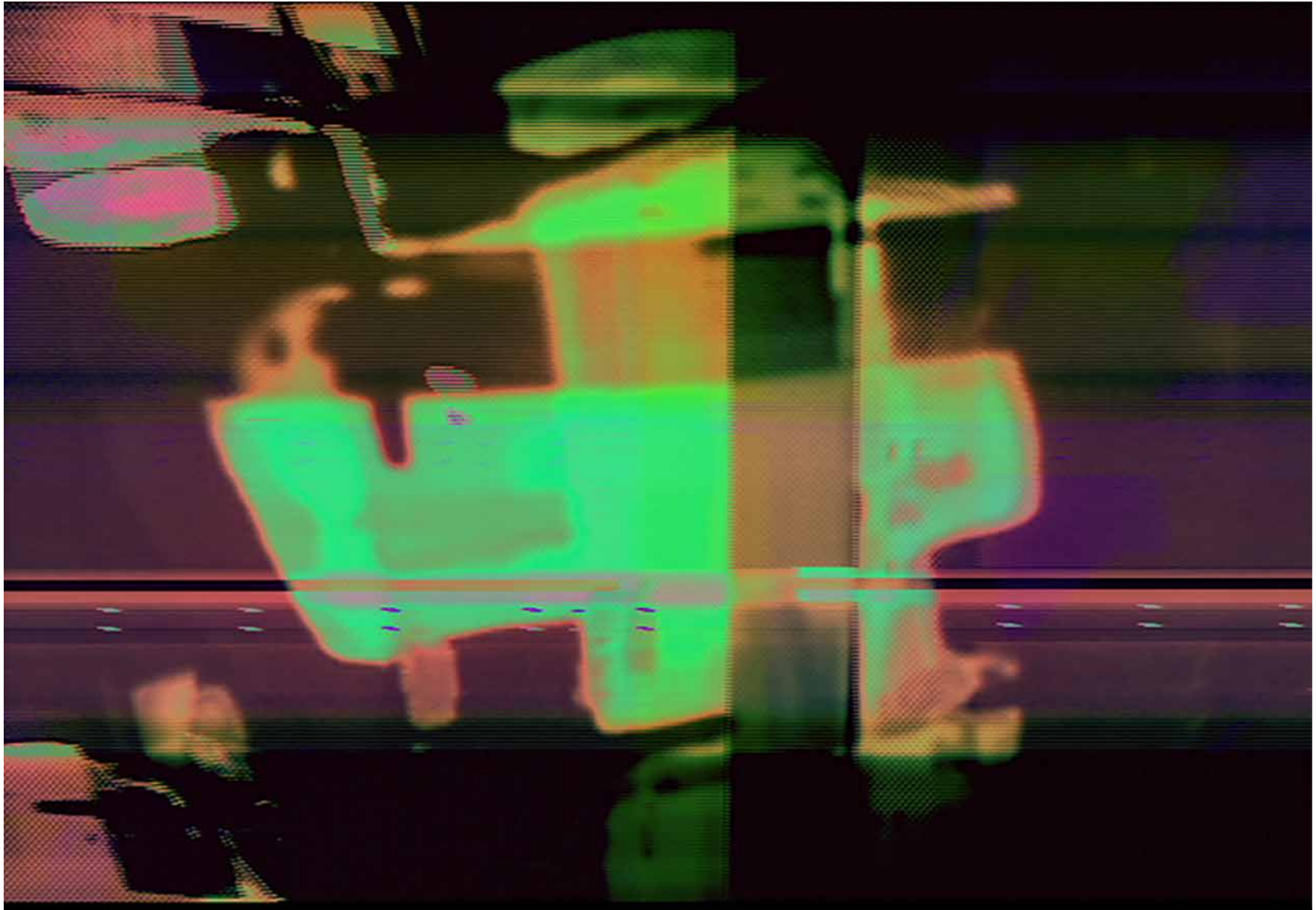


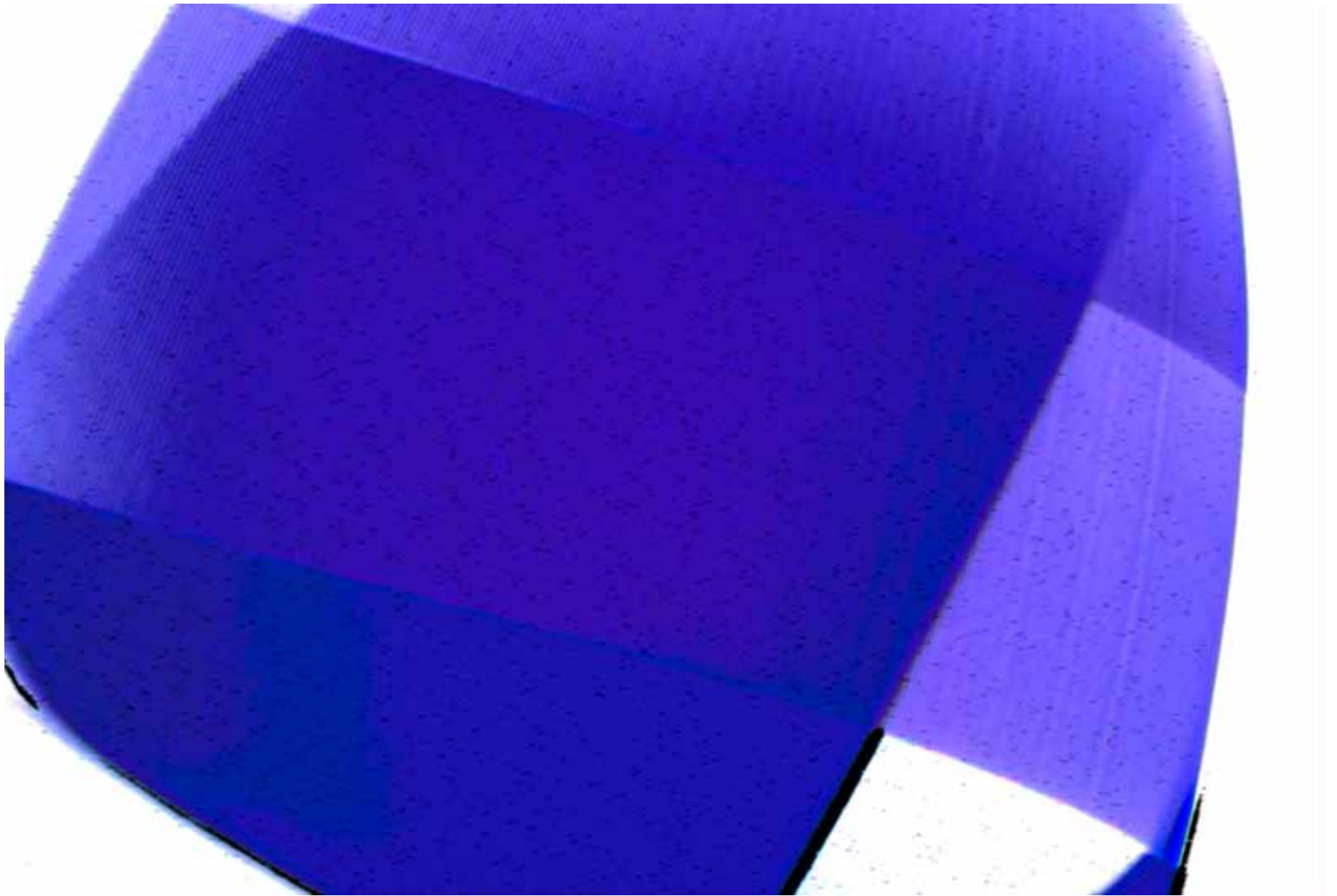
Childhood Banister Spindle (Palmyric Mode), 2018, three-channel video, 2:57 minutes





Green Harmonic Study for 10% Square Wave & 18dB Resonant Filter, 2018, woodcut print, 24 x 36 inches





Risky Wave, 2018, print, 8.5 x 11 inches

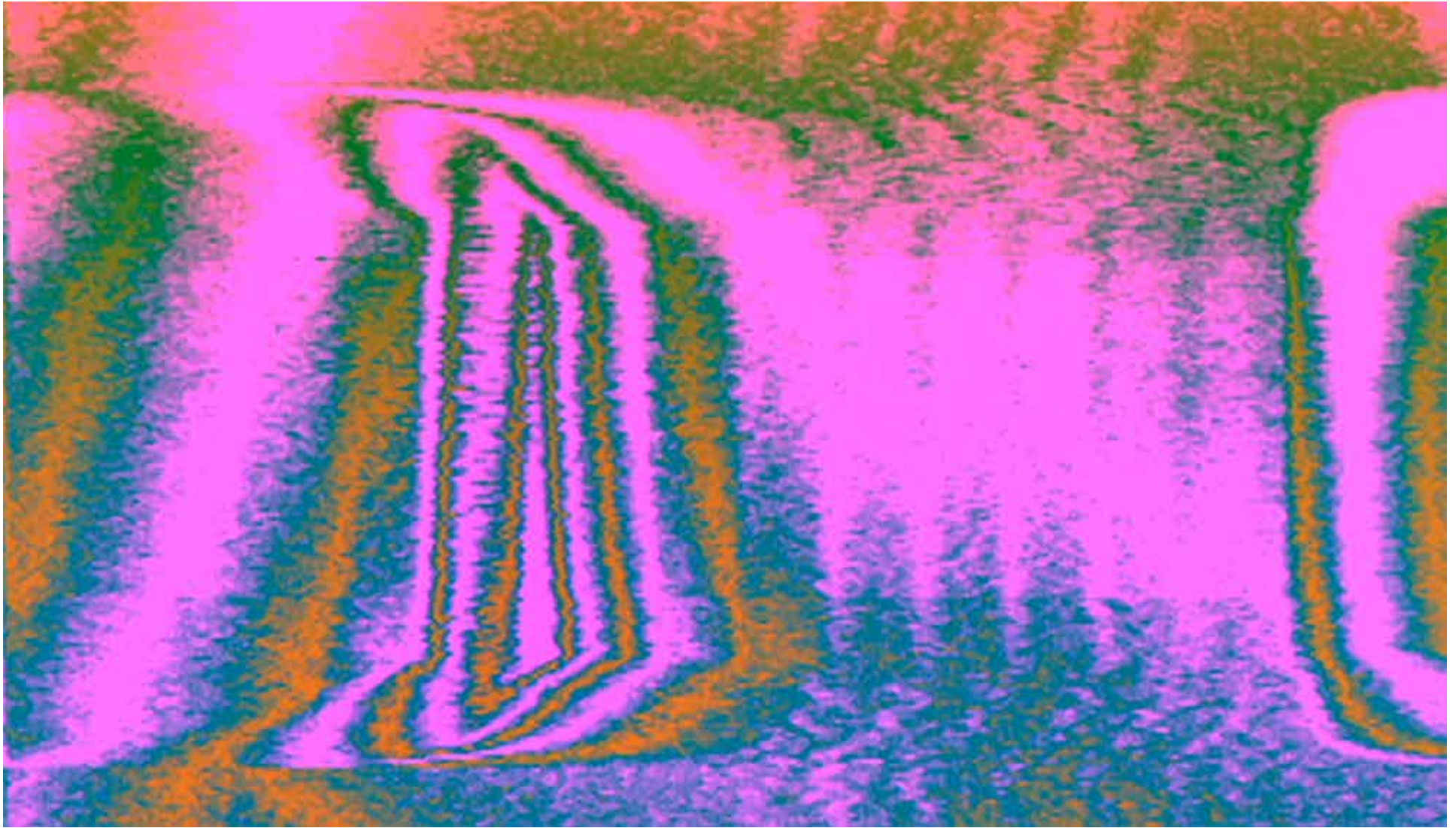


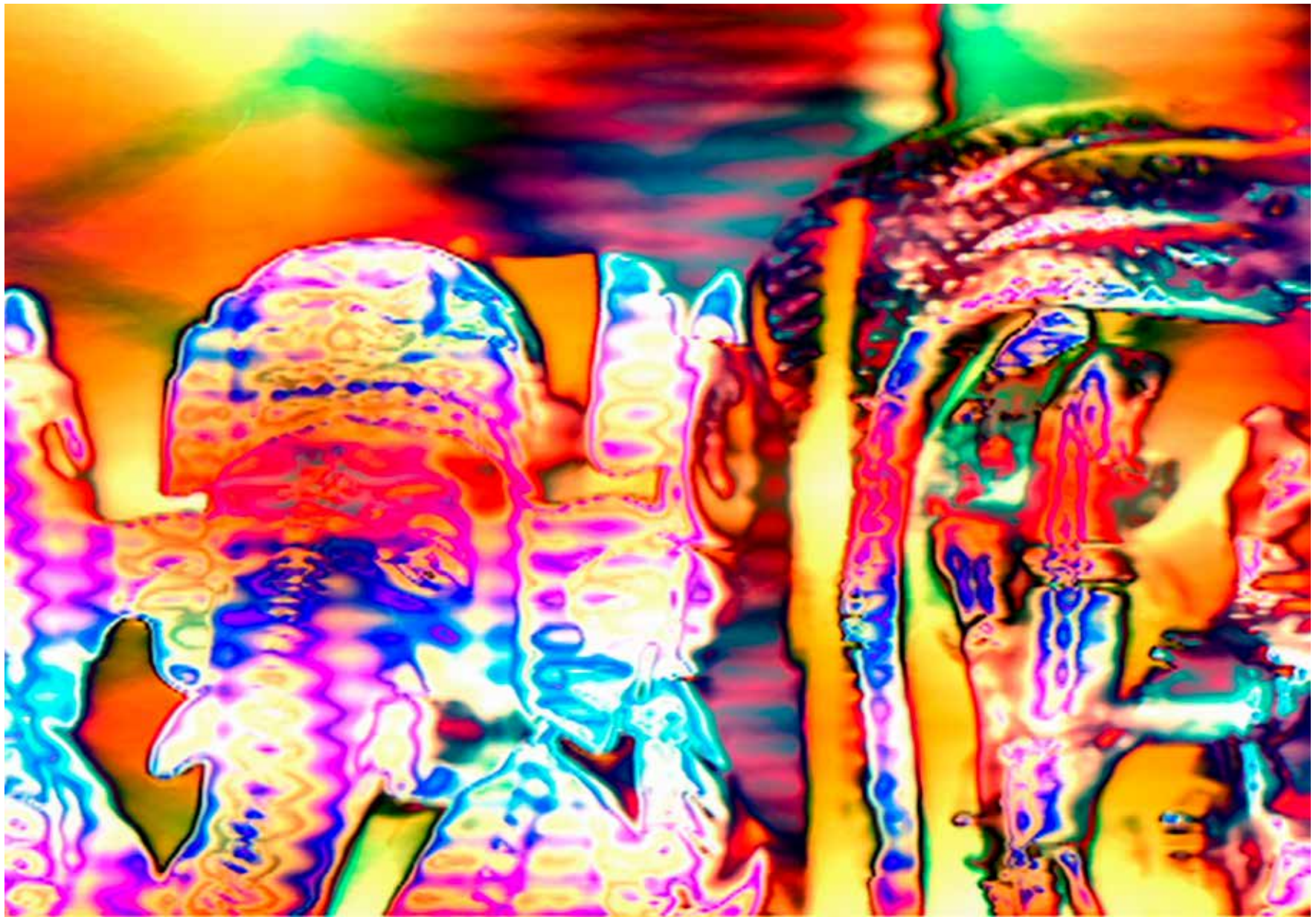






Canopy (Kawsay), 2018, fabric print, 24 x 50 inches





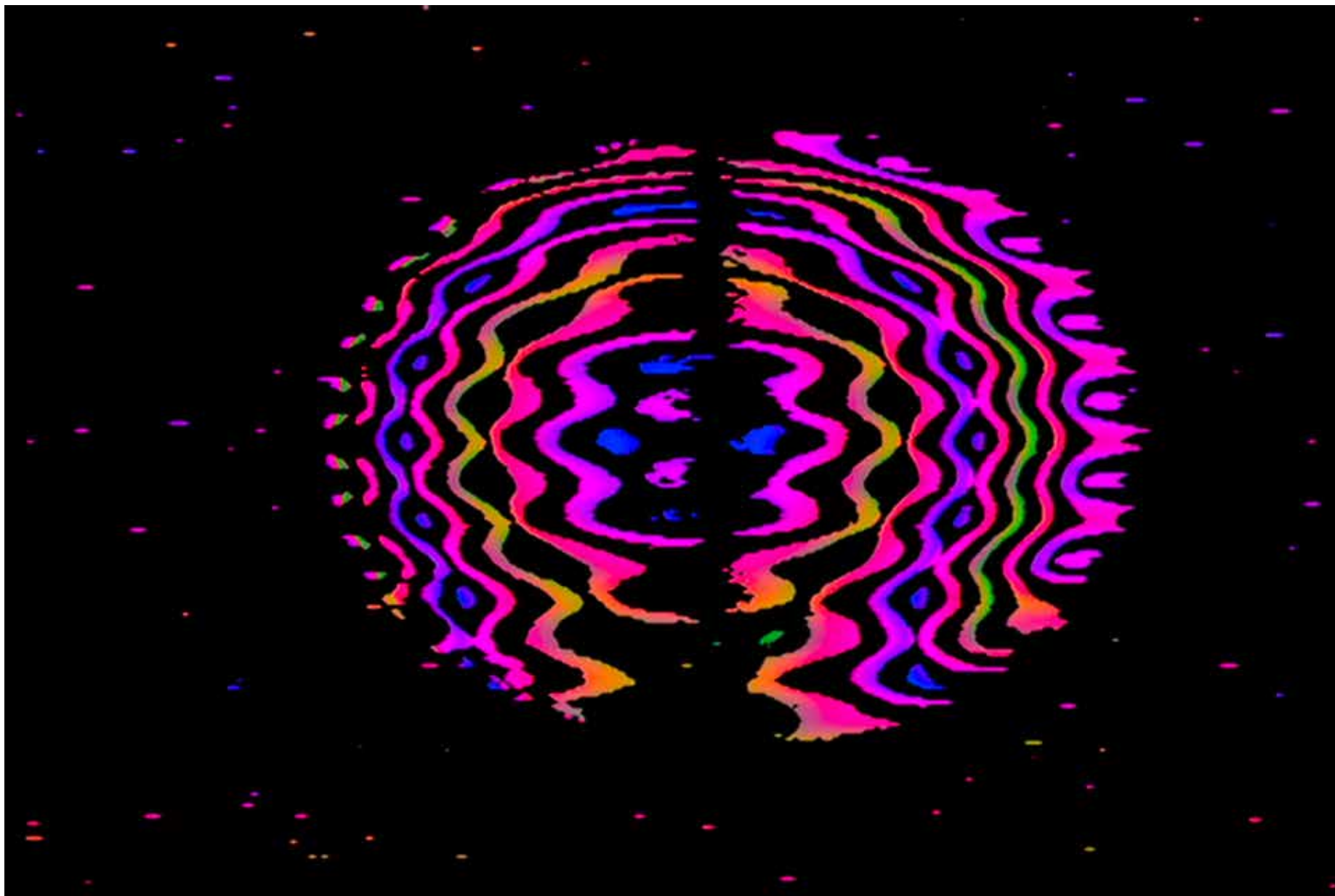
No. 2880 Seraphic BobbleHeads (337is "Isaiah, Answer The Doorbell" Mix), 2018, print, 24 x 34 inches



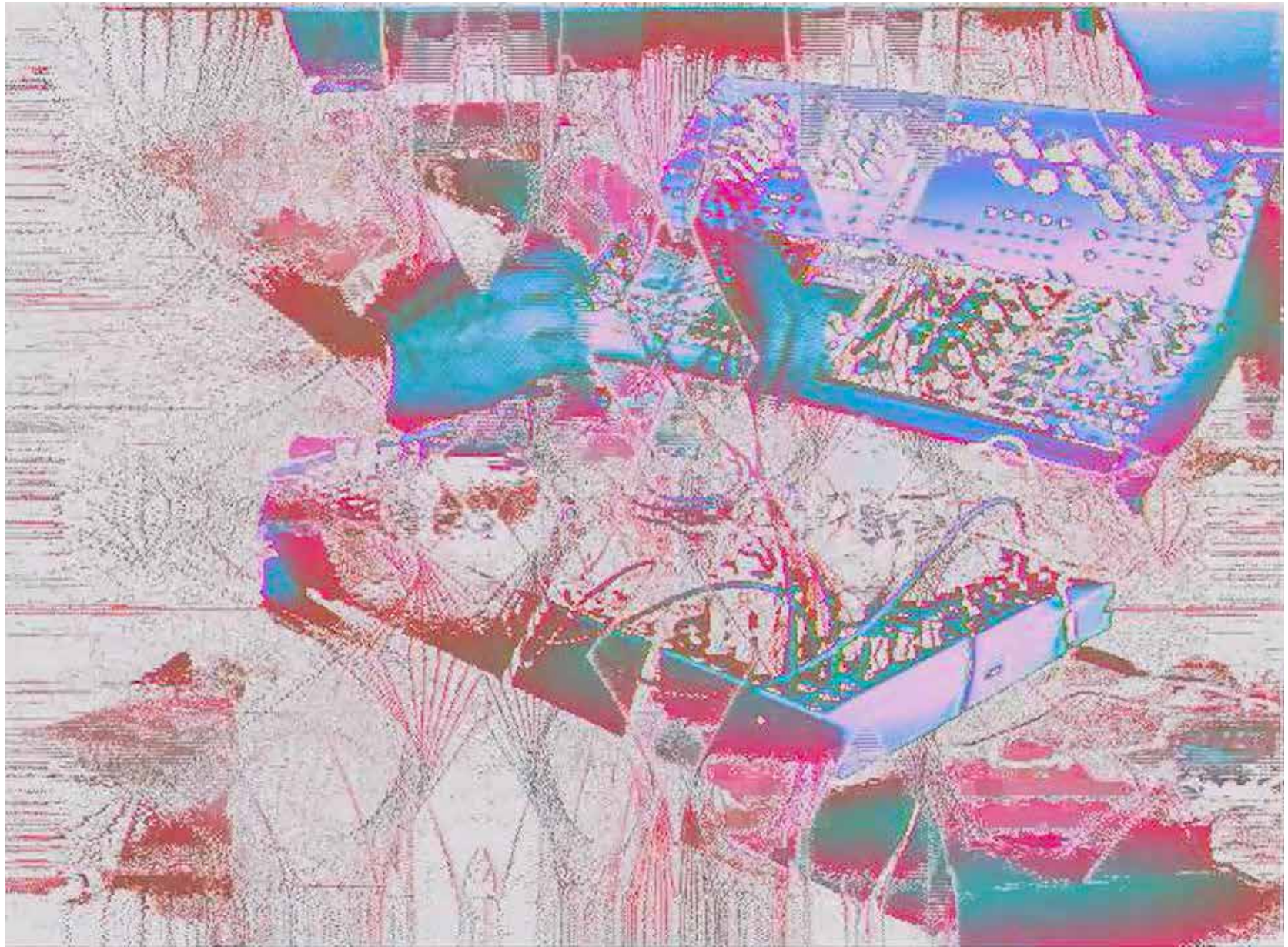


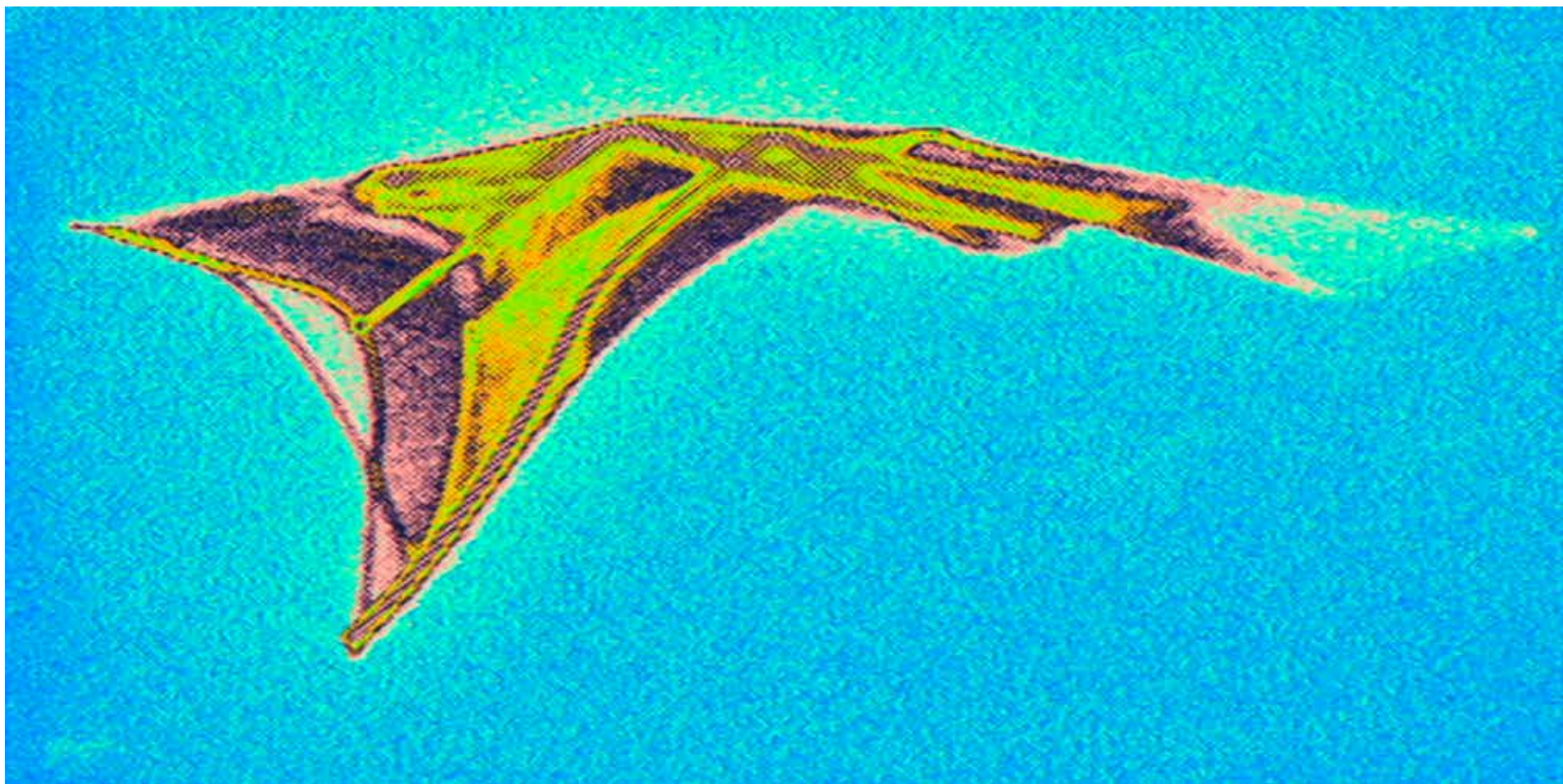
Rhodes 73 Improvisation 2, 2018, single-channel video, 3:10 minutes



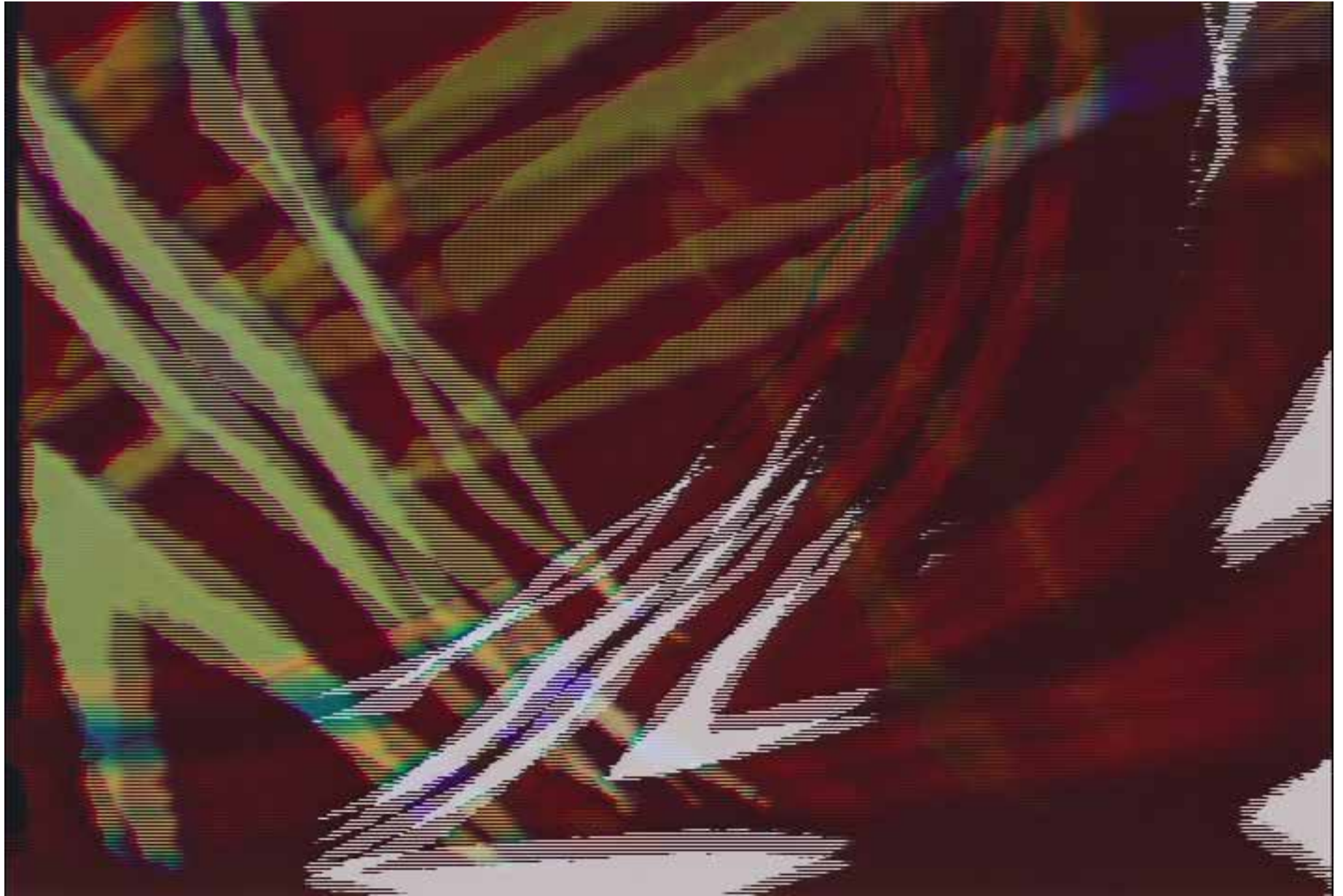


Game On, Gamelan (337is Distributing Threes & Sevens to Boson Spin & Glenn Sogge), 2018, print, 24 x 34 inches



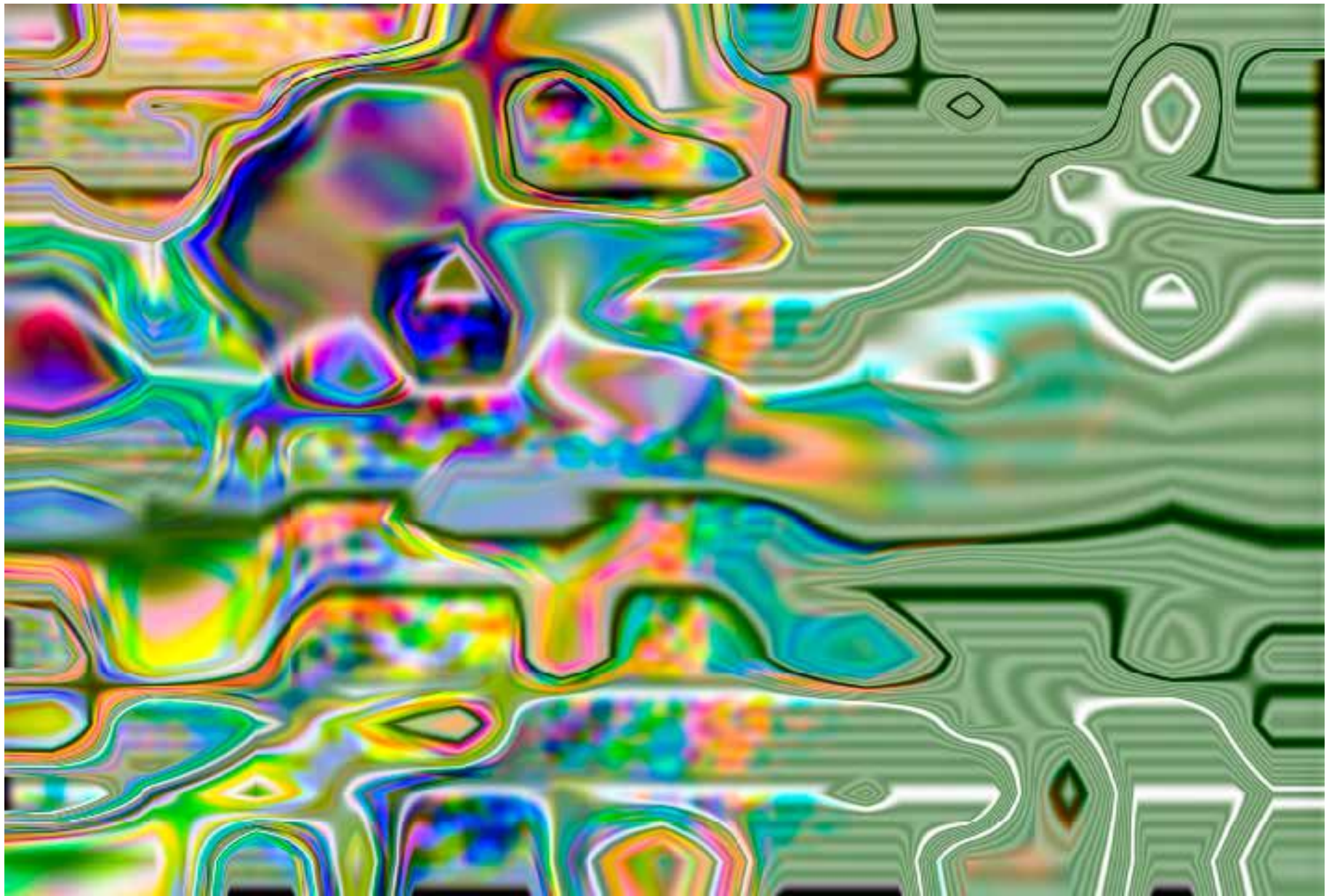


Healing Pool, 2018, print, 24 x 60 inches



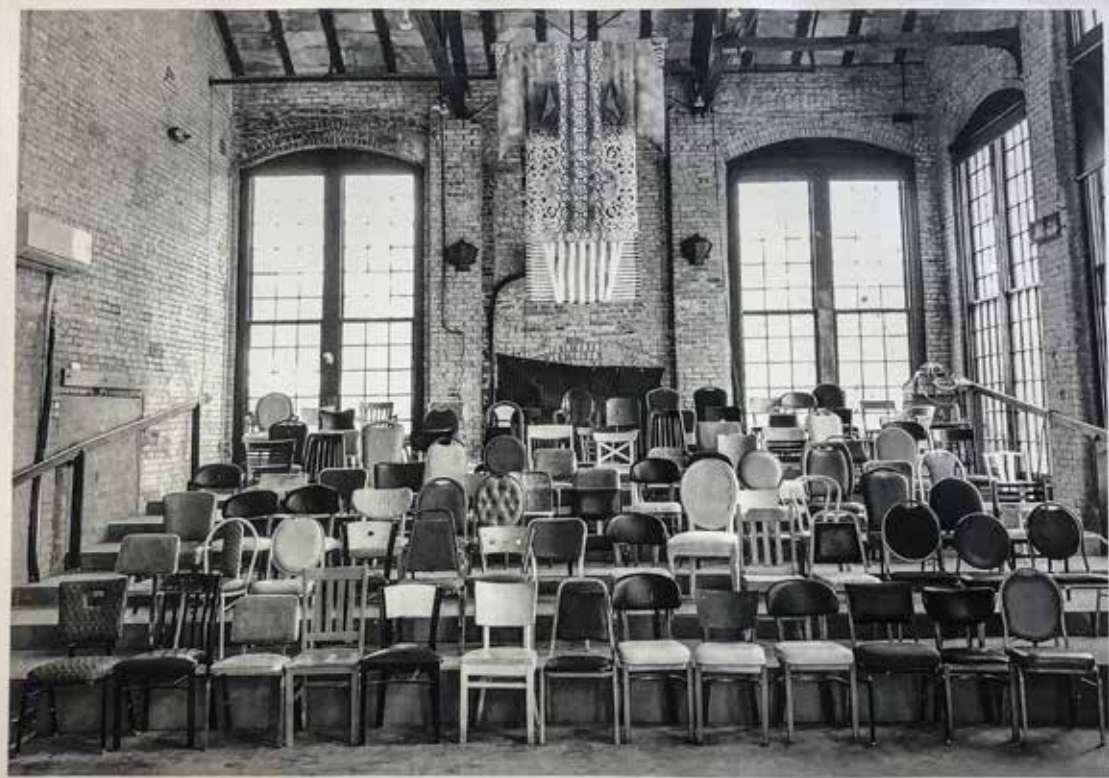


Blue Jay in Flight, 2018, drawing, 11 x 17 inches



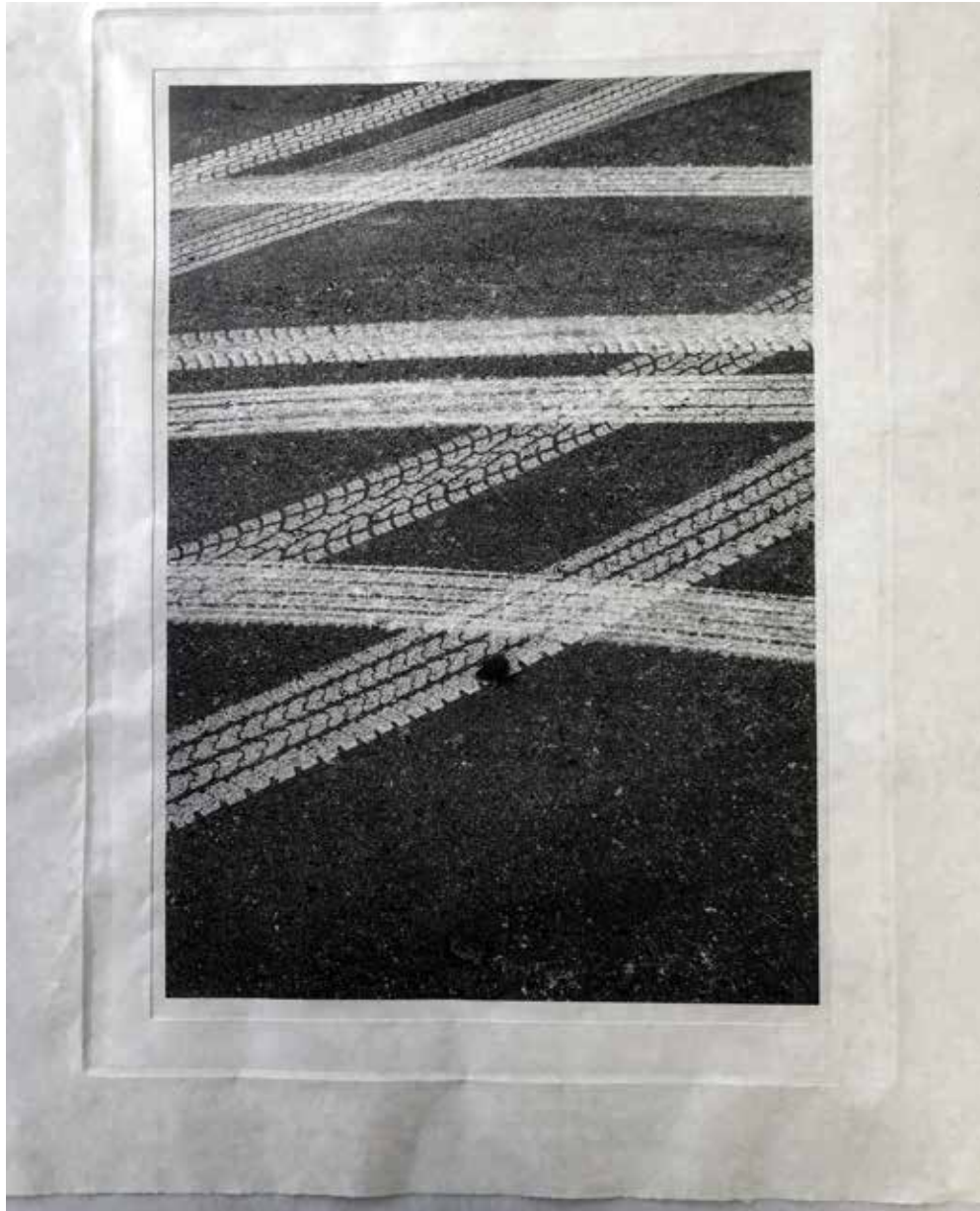


Red-Robed Self-Portrait, 2018, woodcut print, 24 x 36 inches





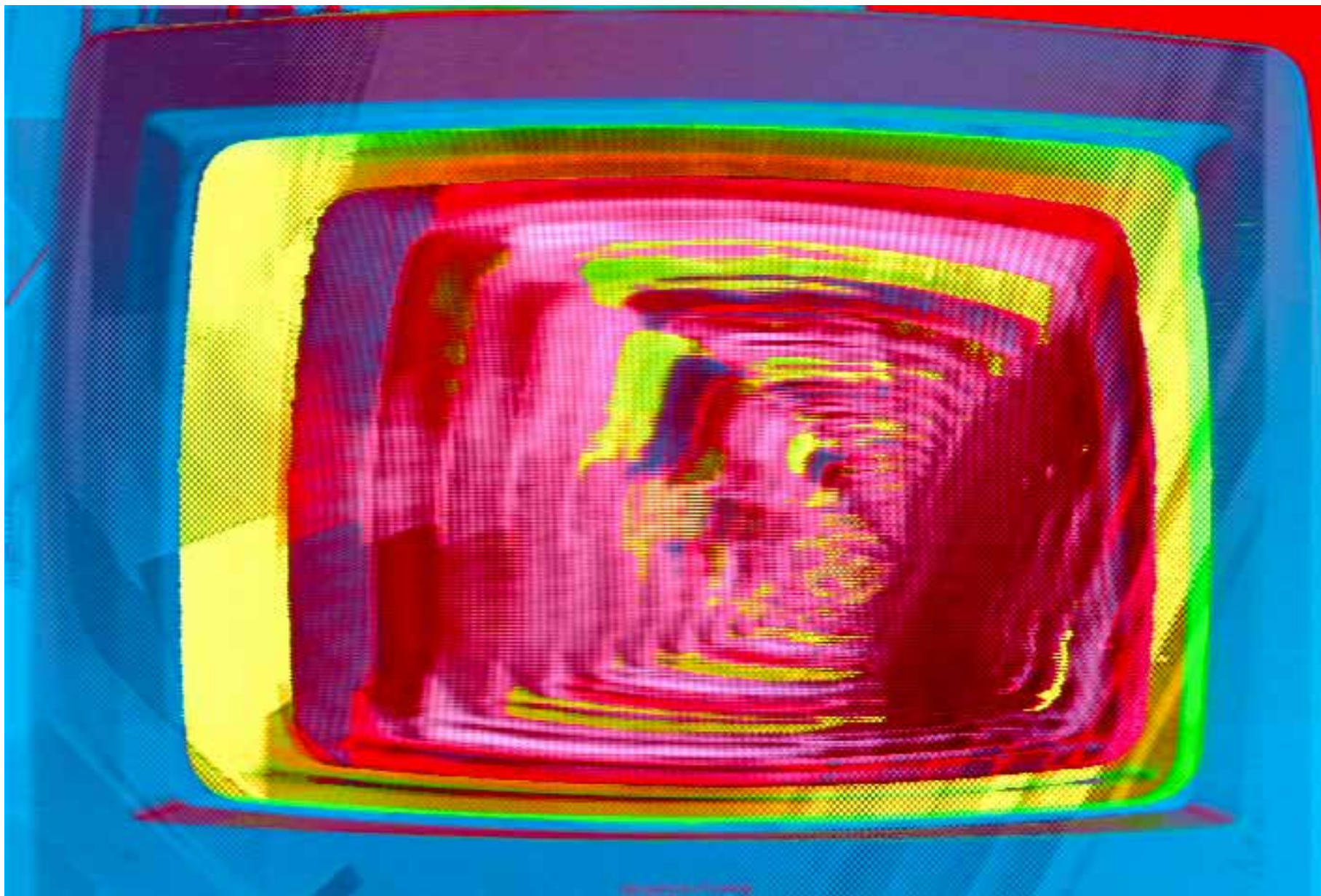
Leaves, 2018, photo polymer print, 24 x 36 inches





Tree Roots, 2018, photo polymer print, 24 x 36 inches



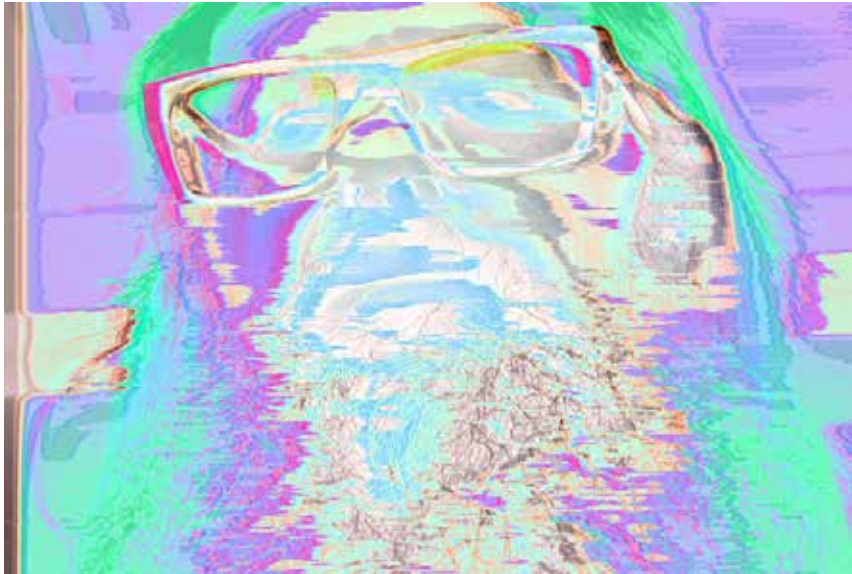


They Say You, 2018, single-channel video, 20:49 minutes

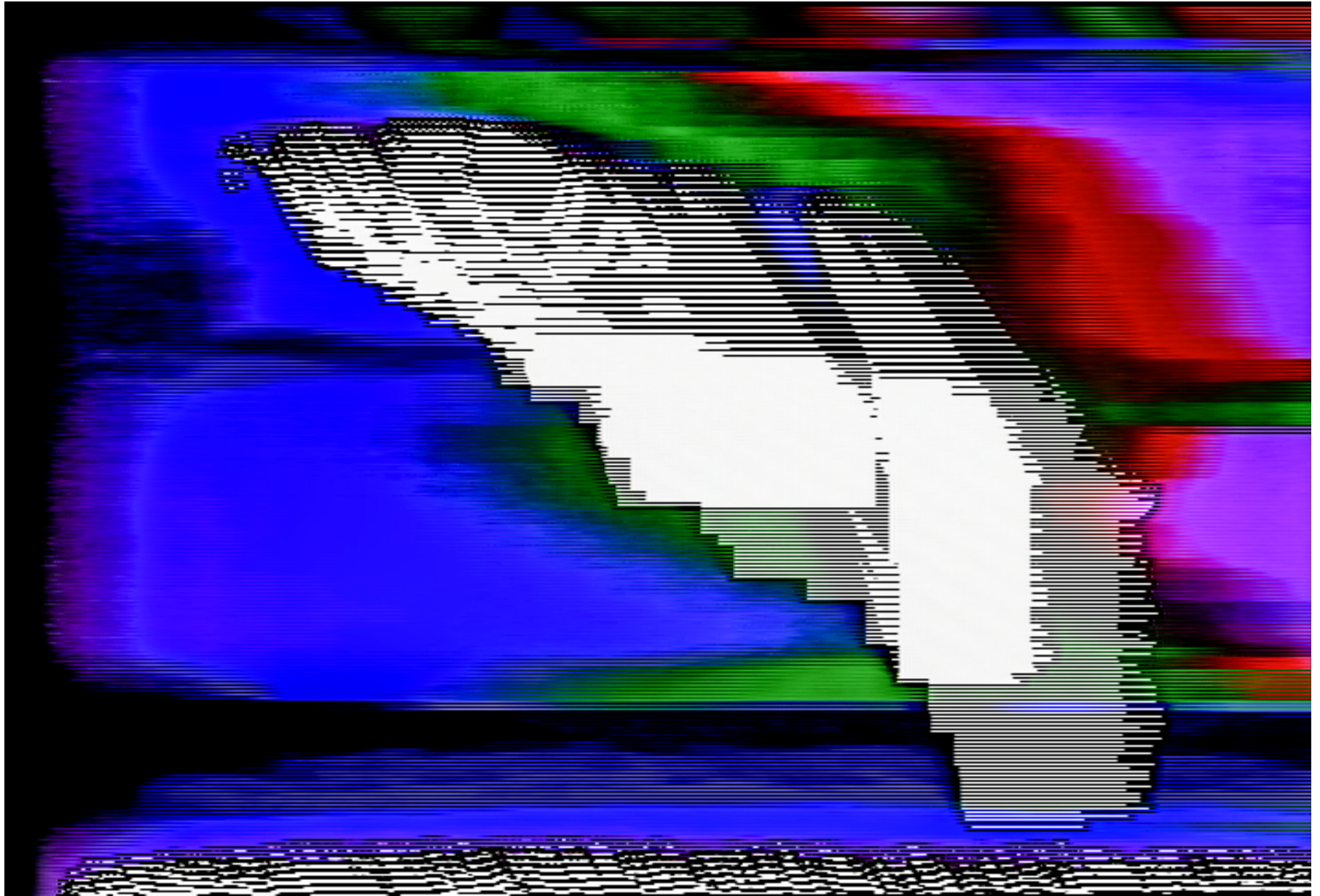




Synth Self-Portrait, 2018, single-channel video, 0:44 minutes





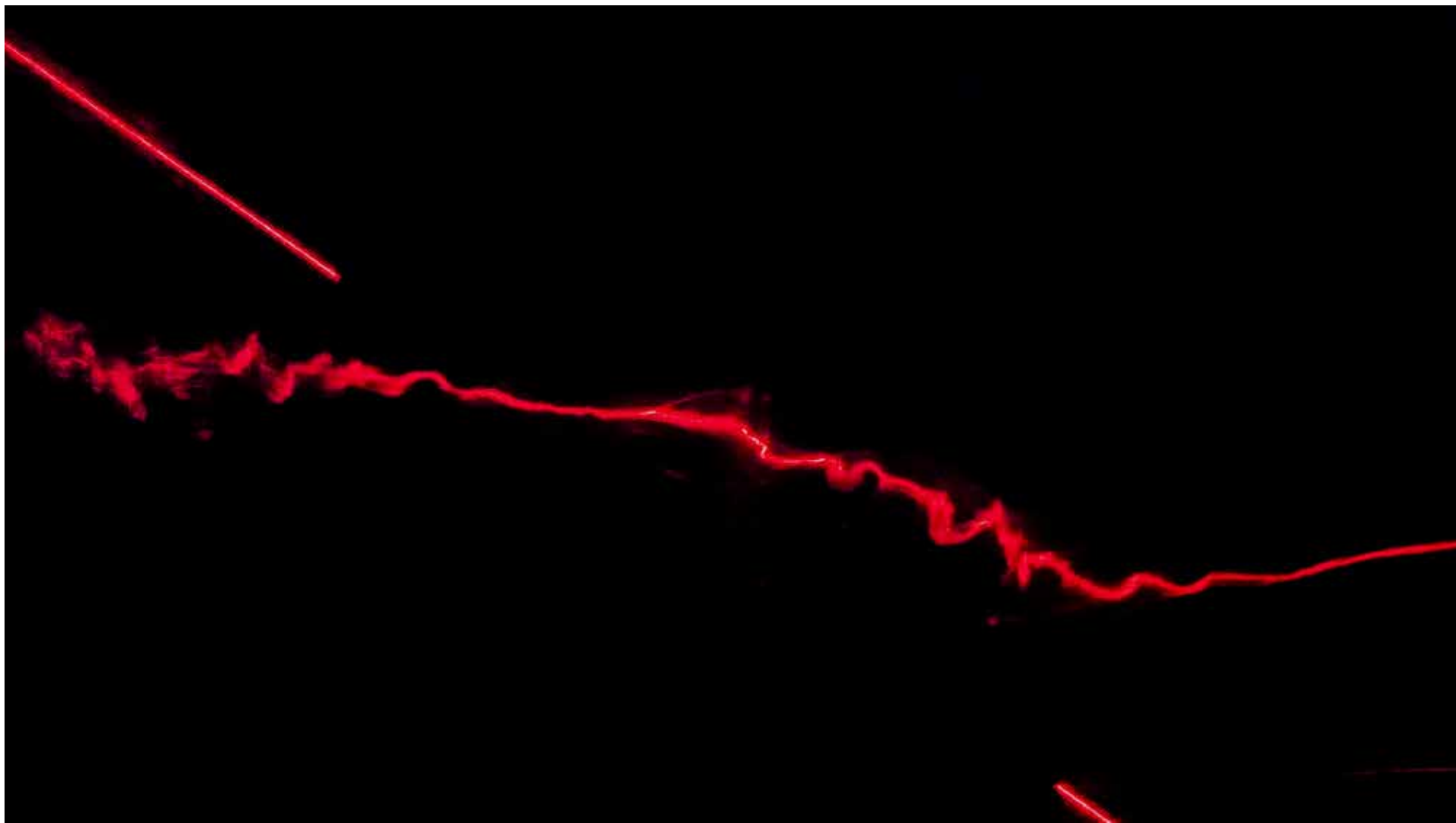




Installation view of *Triple Immersive COLOR*







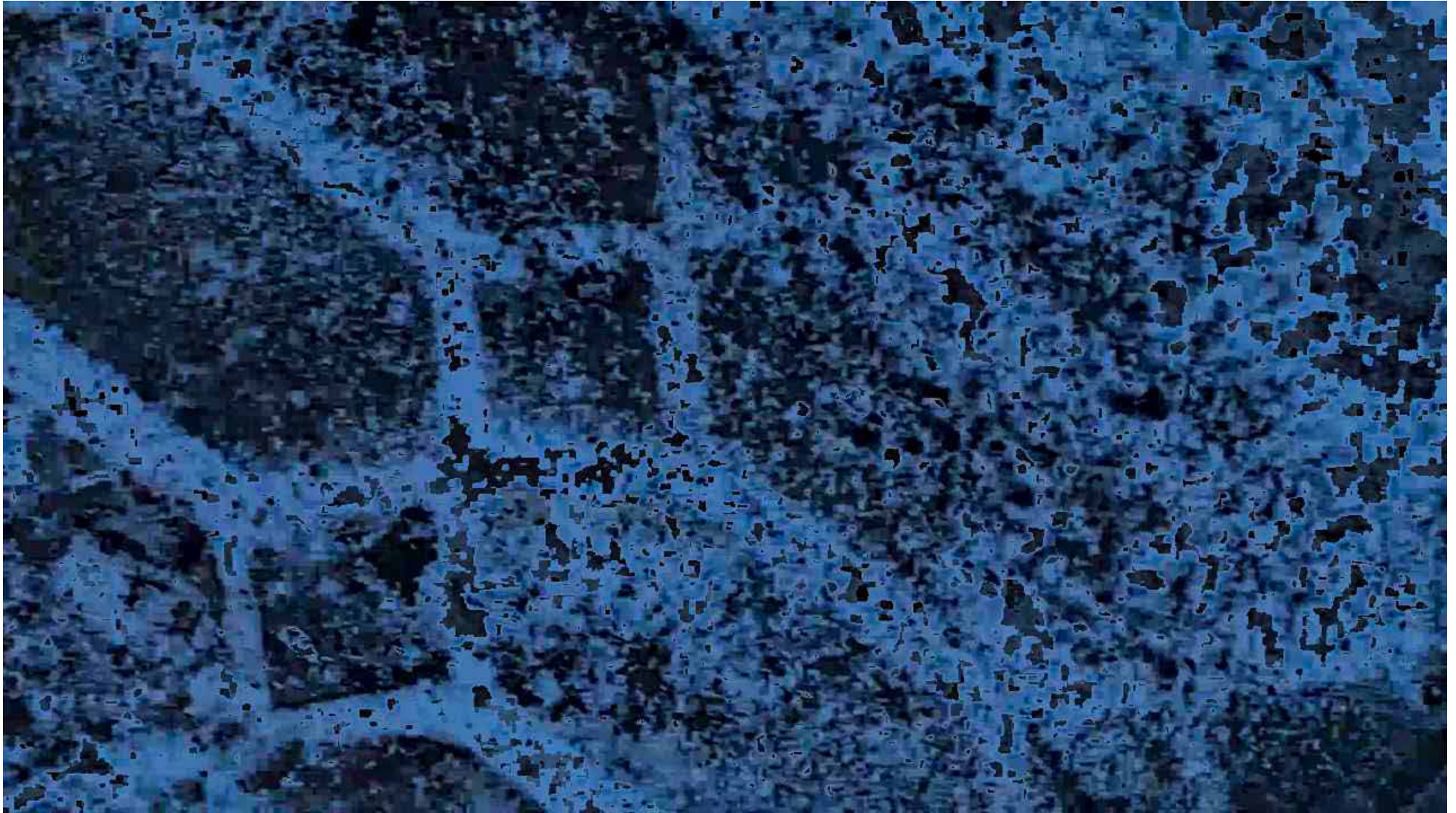


Screening of *THot Reds*, 2019, single-channel video, 1:49 minutes



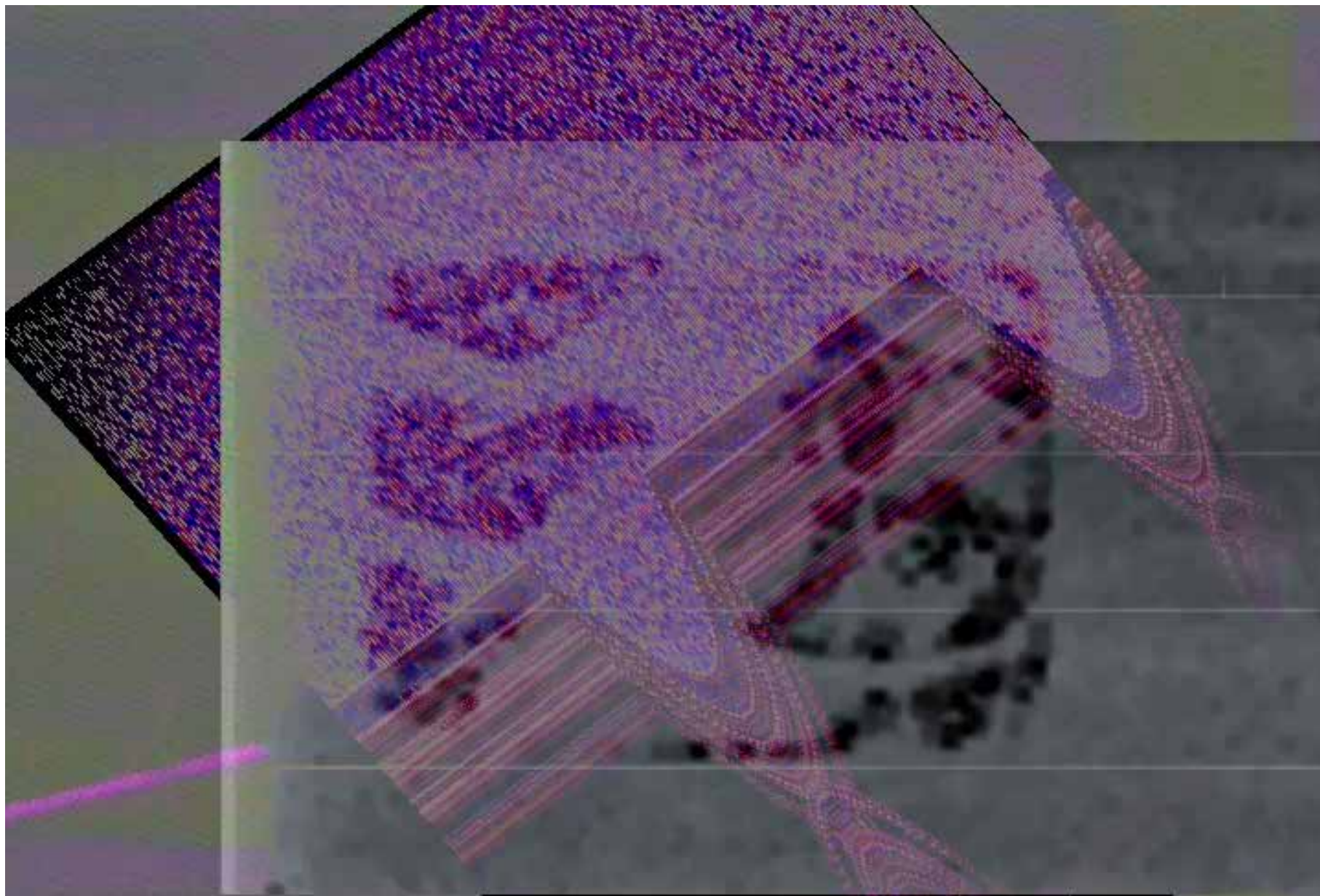


Quad Staircase Rhodes, 2019, single-channel video, 1:31 minutes



Sensitive Dueting (Honey, I Got Traps I Ain't Ev...







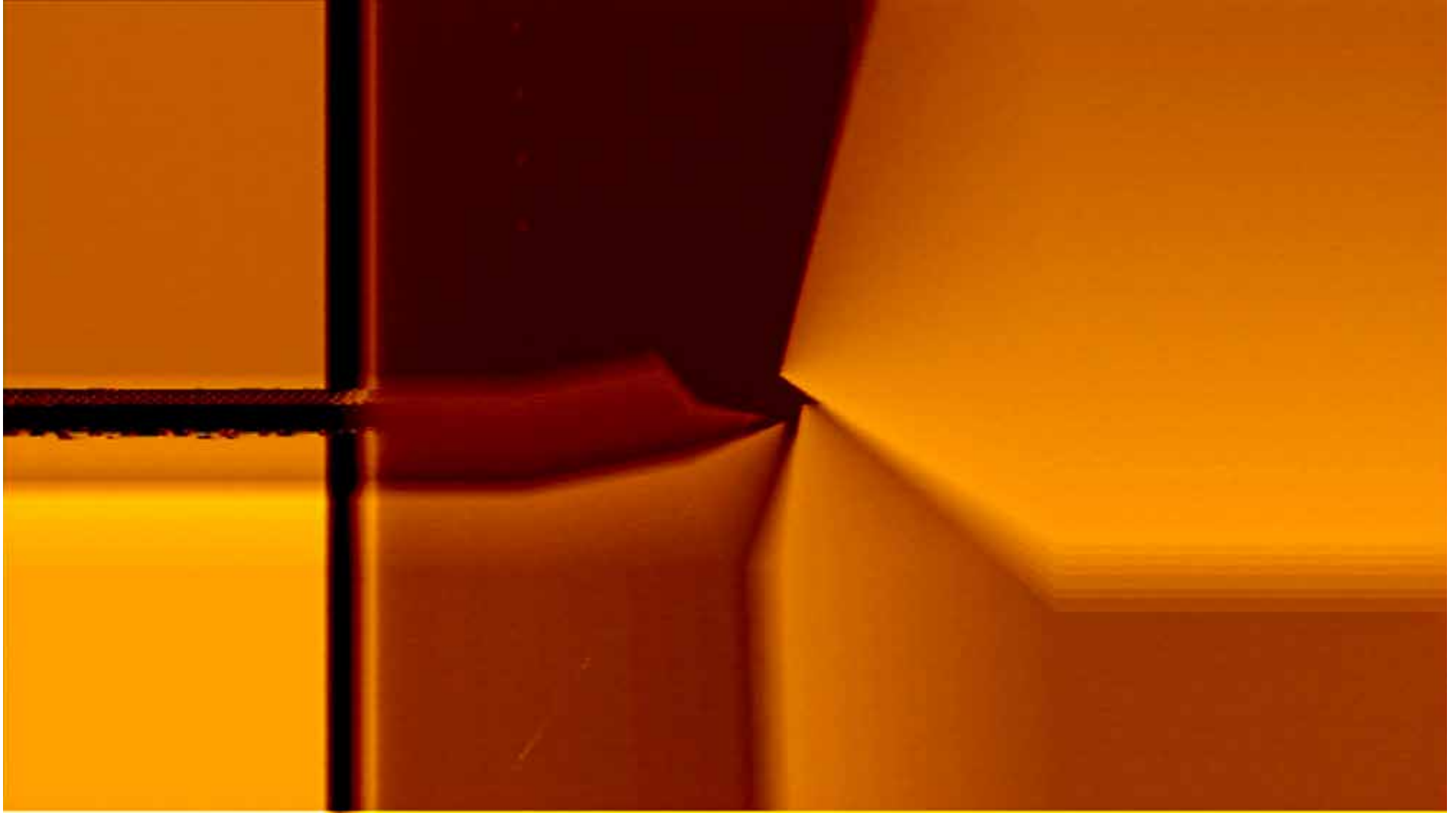
Wound Maker (Be Wary of False Gauze!), 2019, sheet glass, one pound of salt, glue & binder clips, wood base: 19 x 6 inches, glass: 16 x 12 x 1 inches

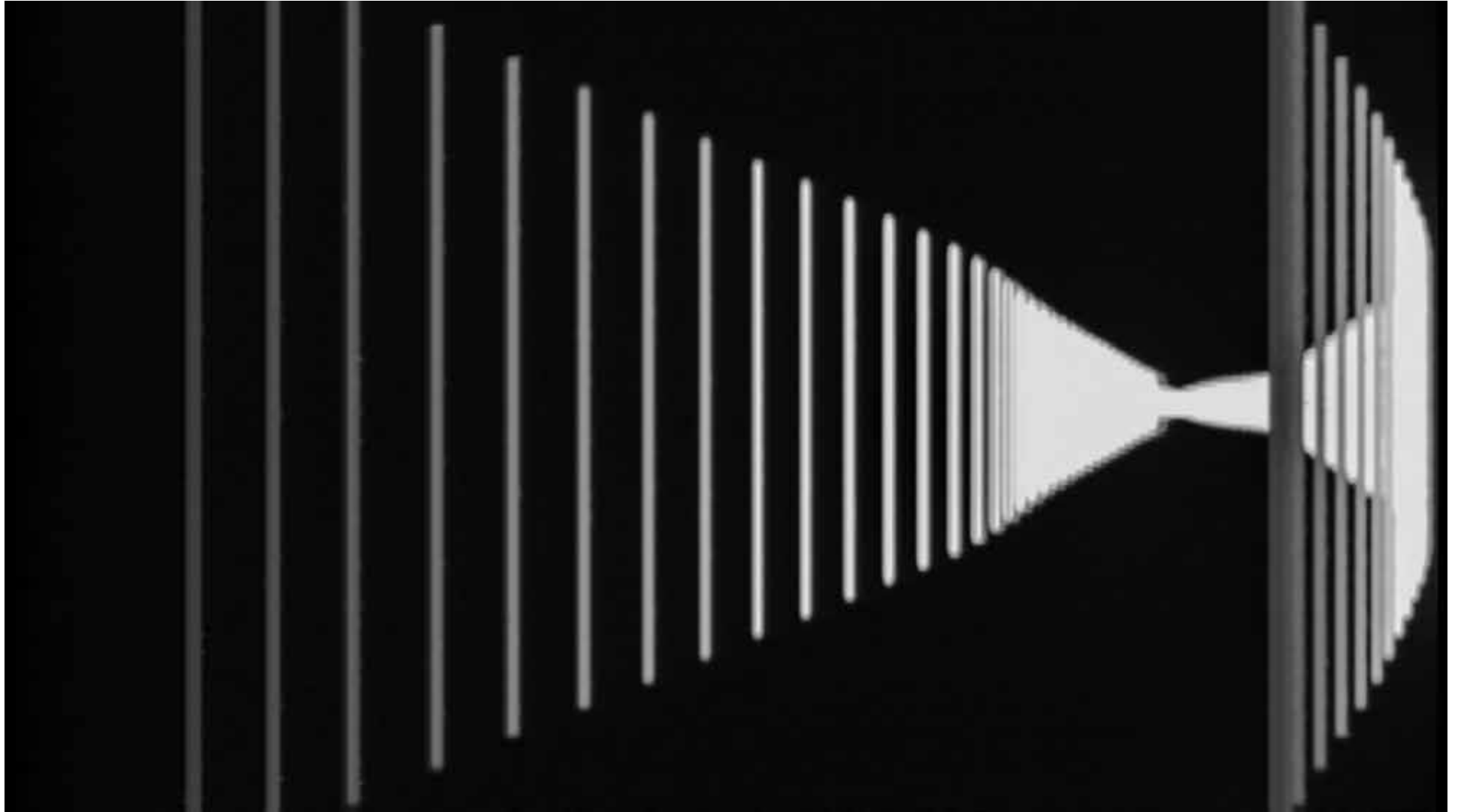


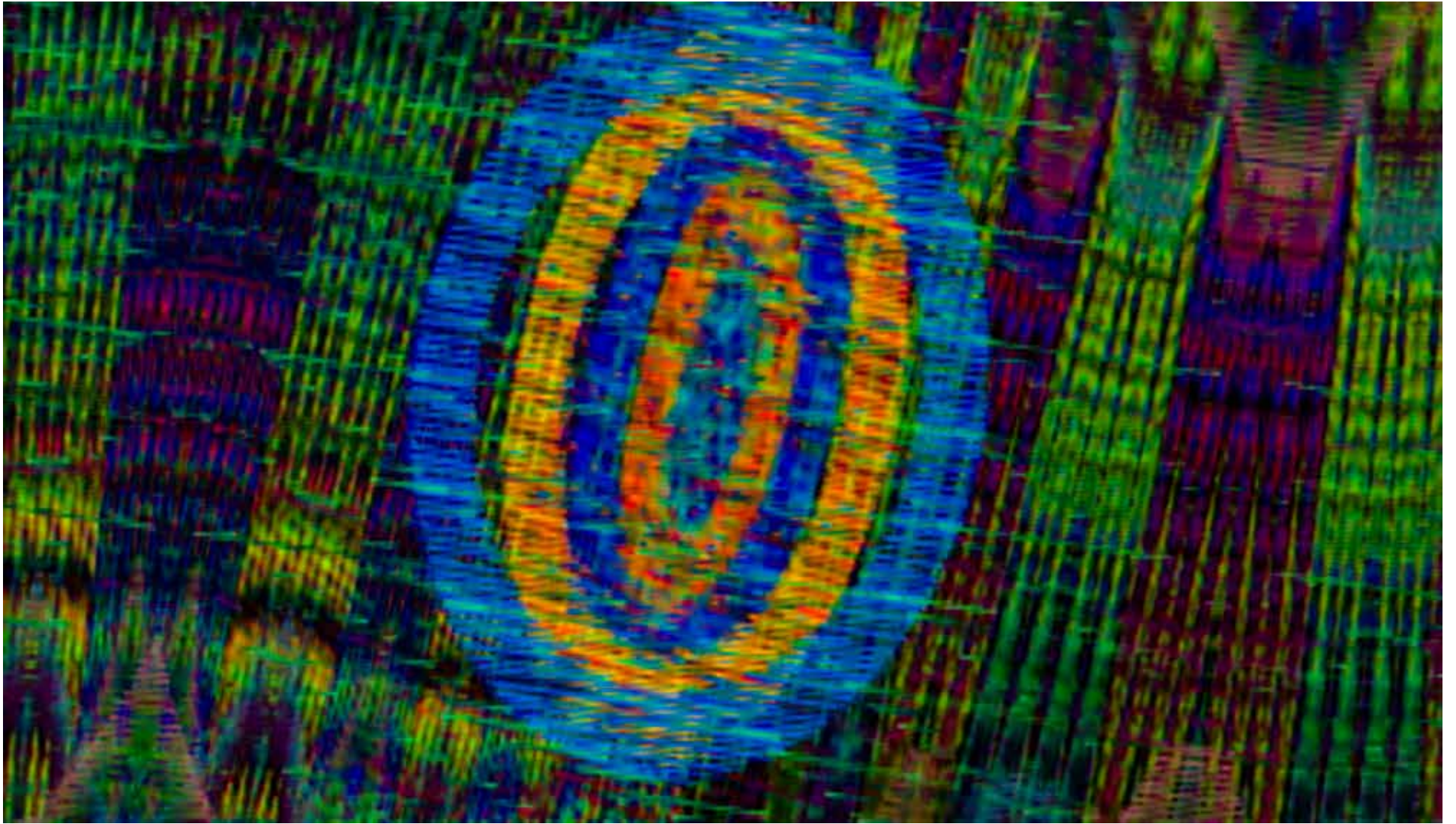


Fragile Vessels, 2019, video/sculpture/installation, size varies

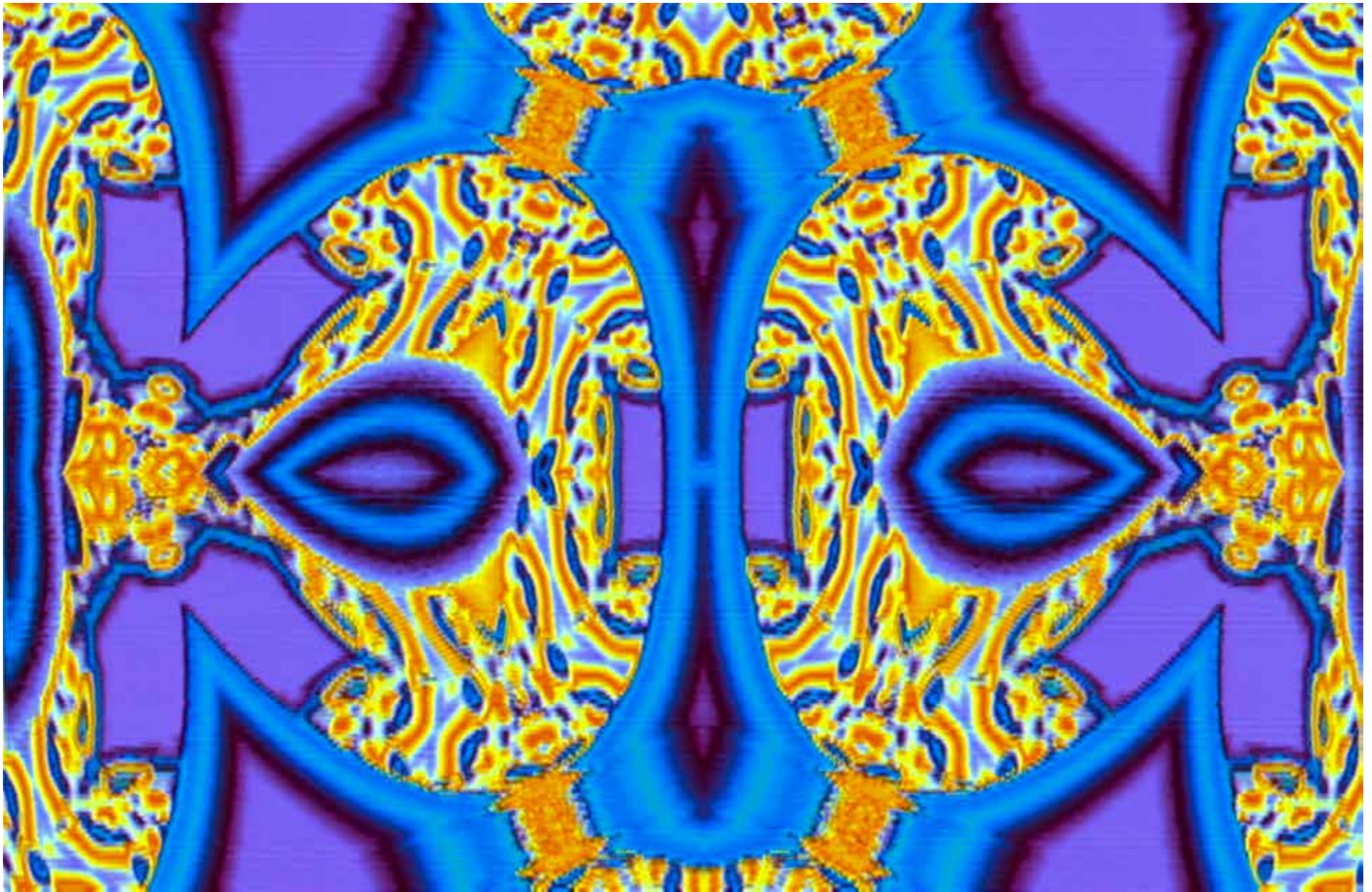


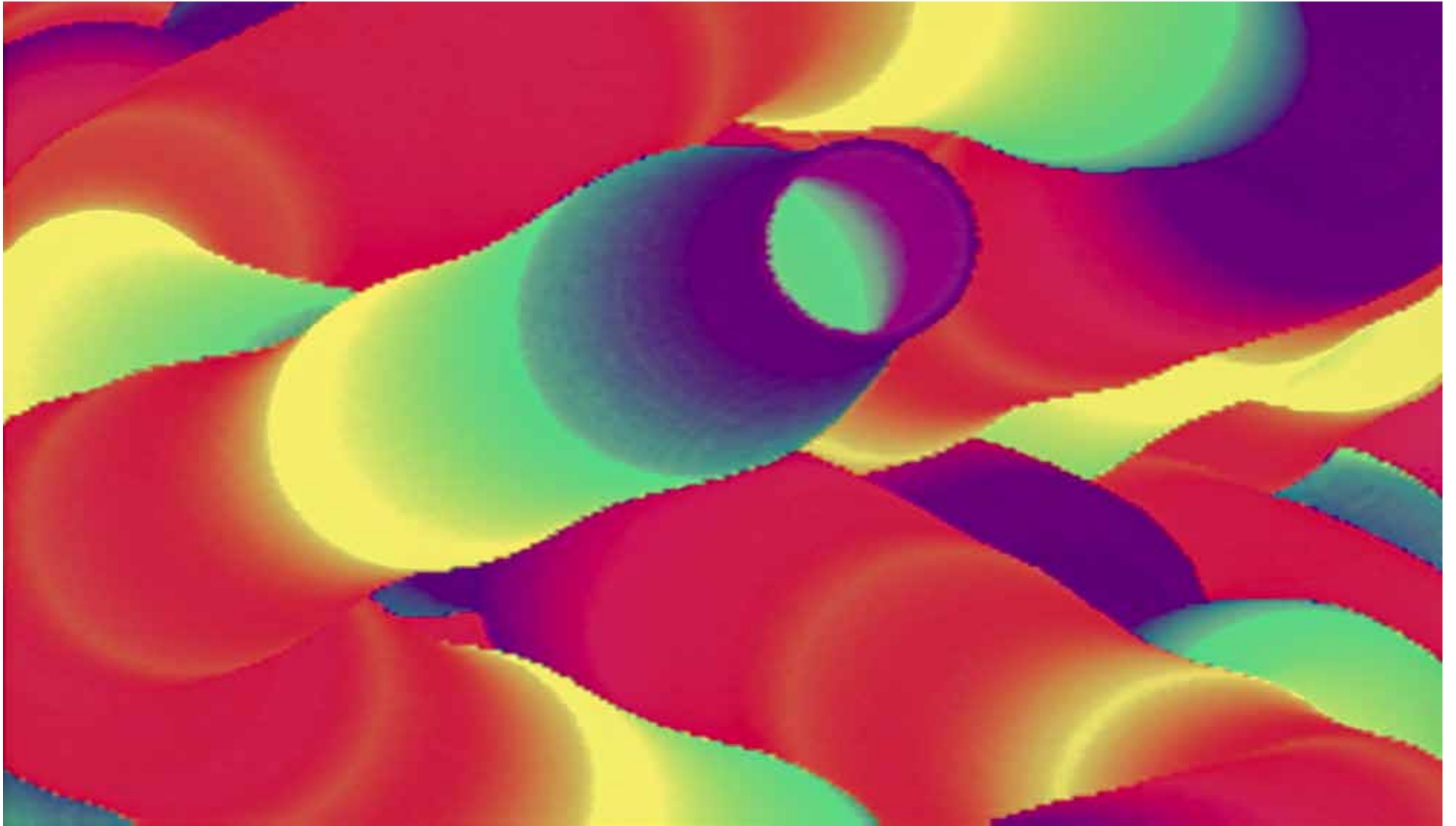




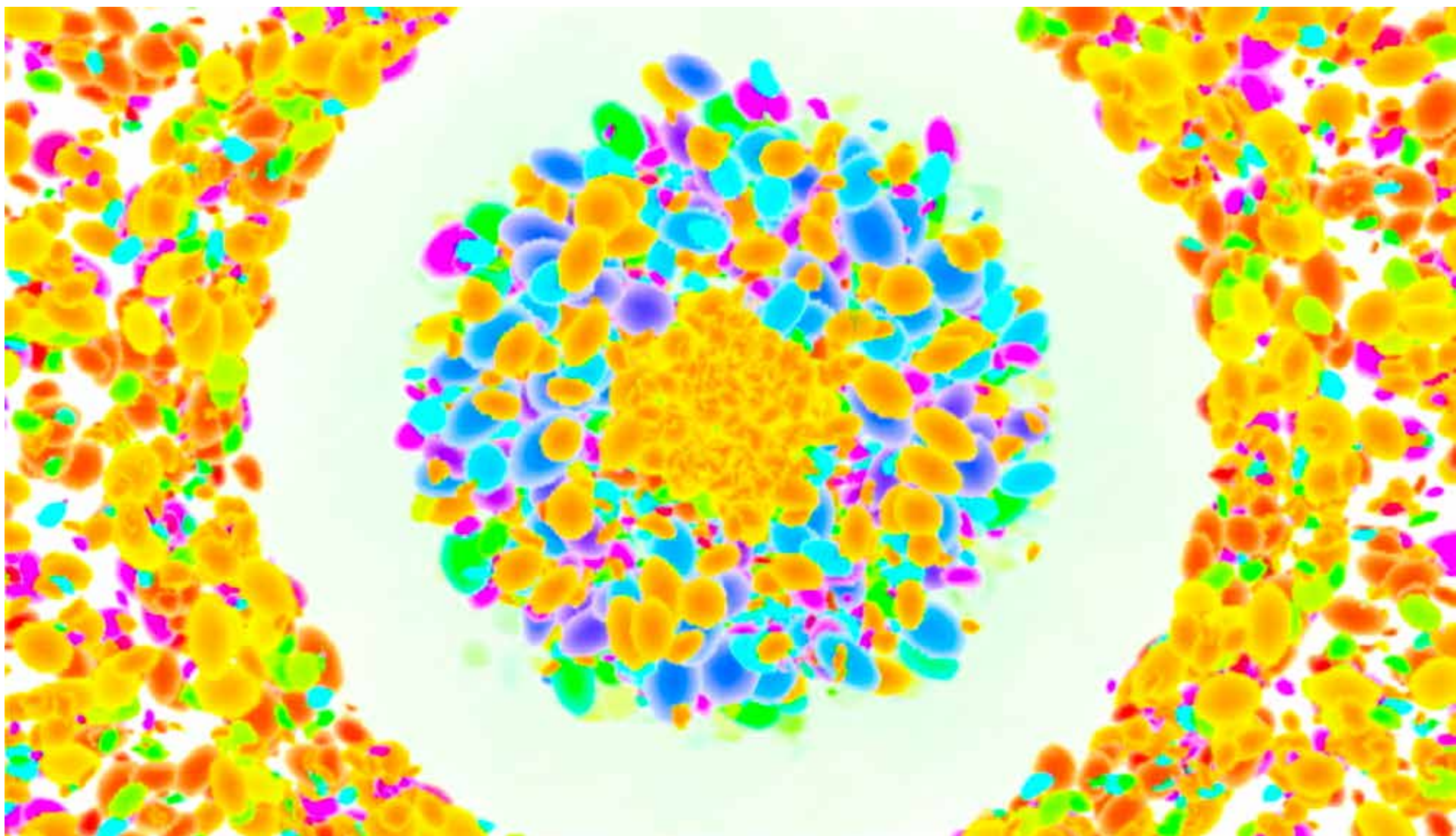


More Than Two, 2019, single-channel video, 1:52 minutes



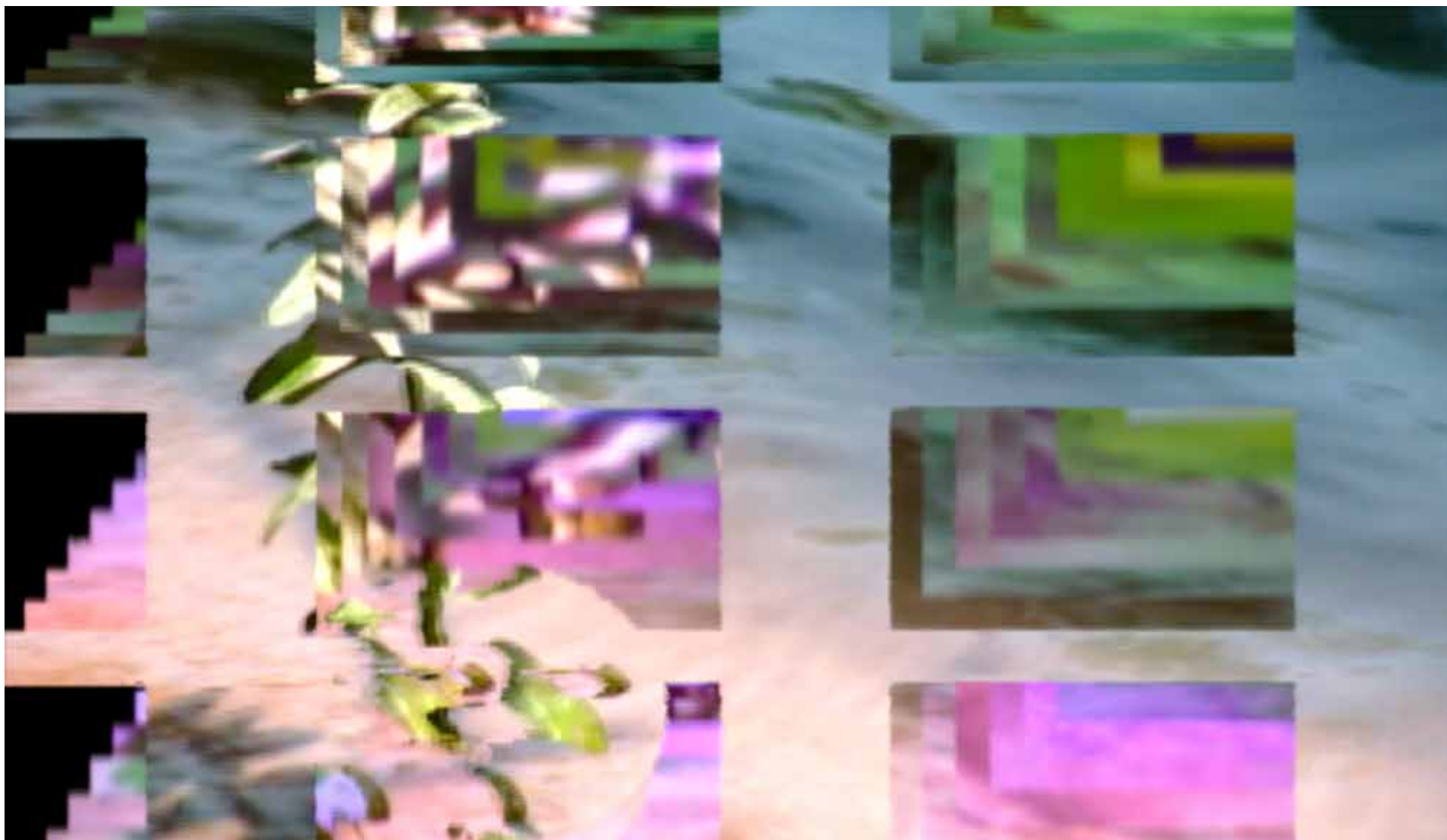


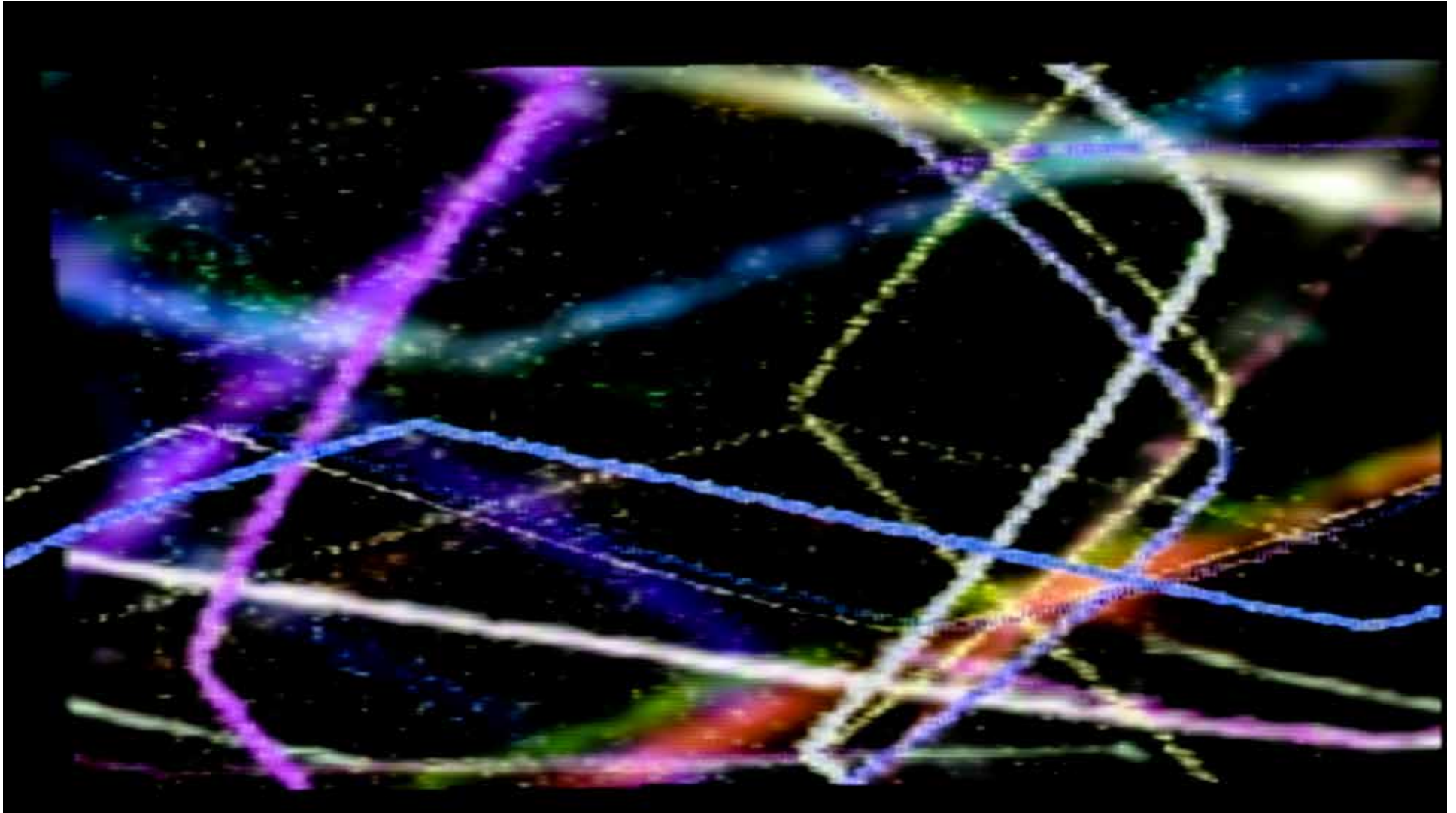
Seeking, 2019, single-channel video, 2:46 minutes



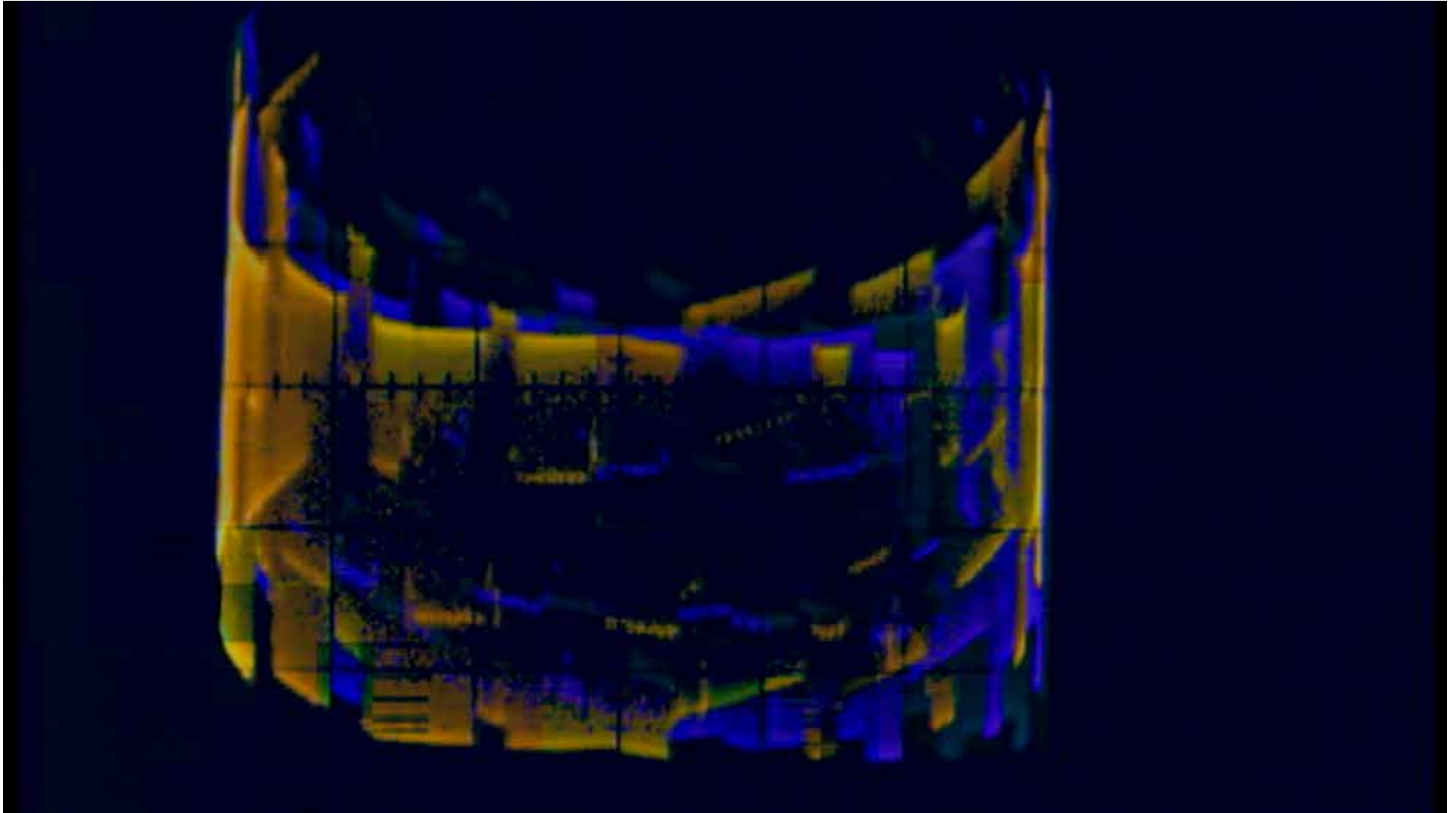


Rectilinear, 2019, single-channel video, 4:33 minutes





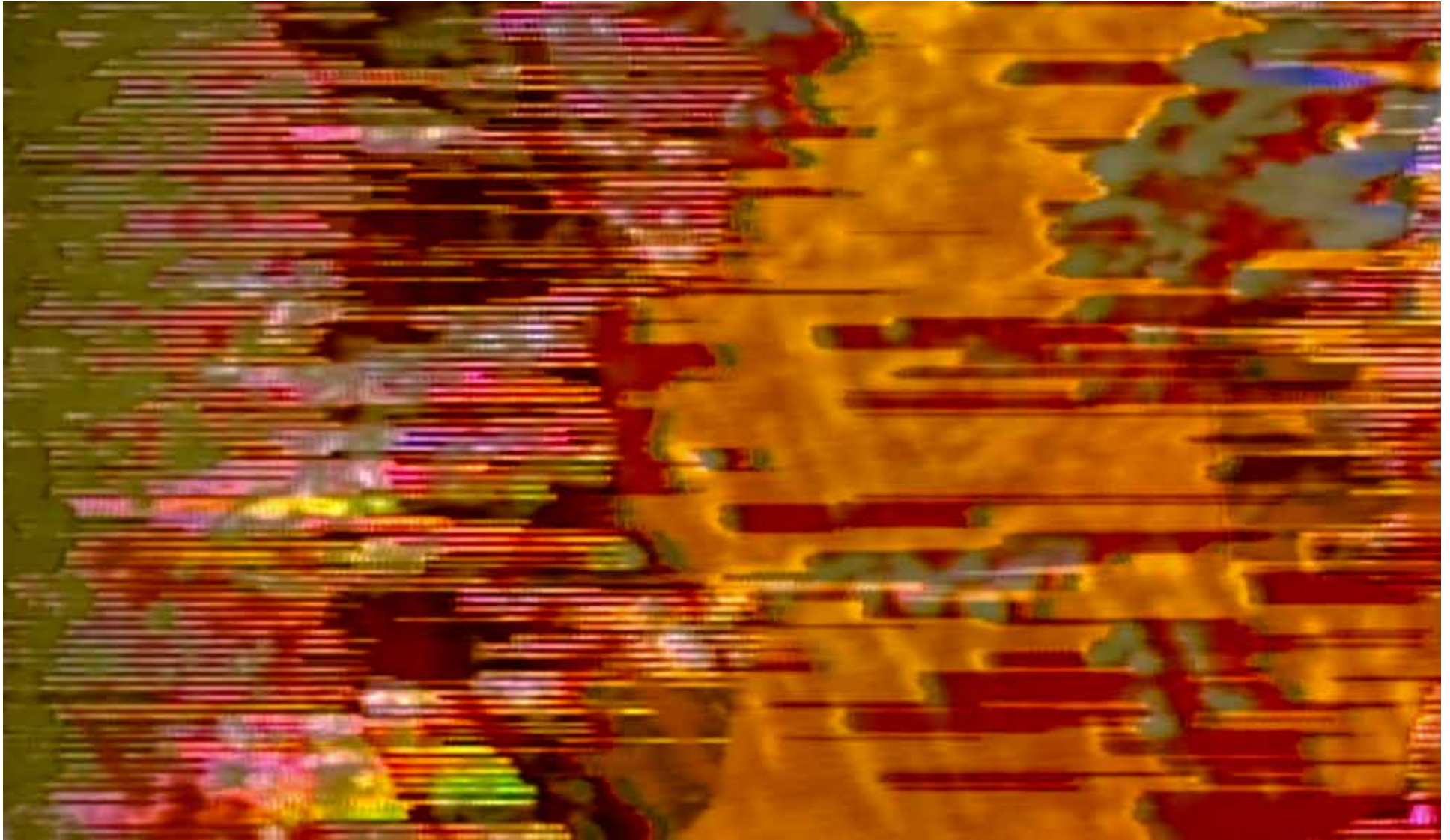
Incoming Message (Dream Melody No. One), 2019, single-channel video, 5:33 minutes





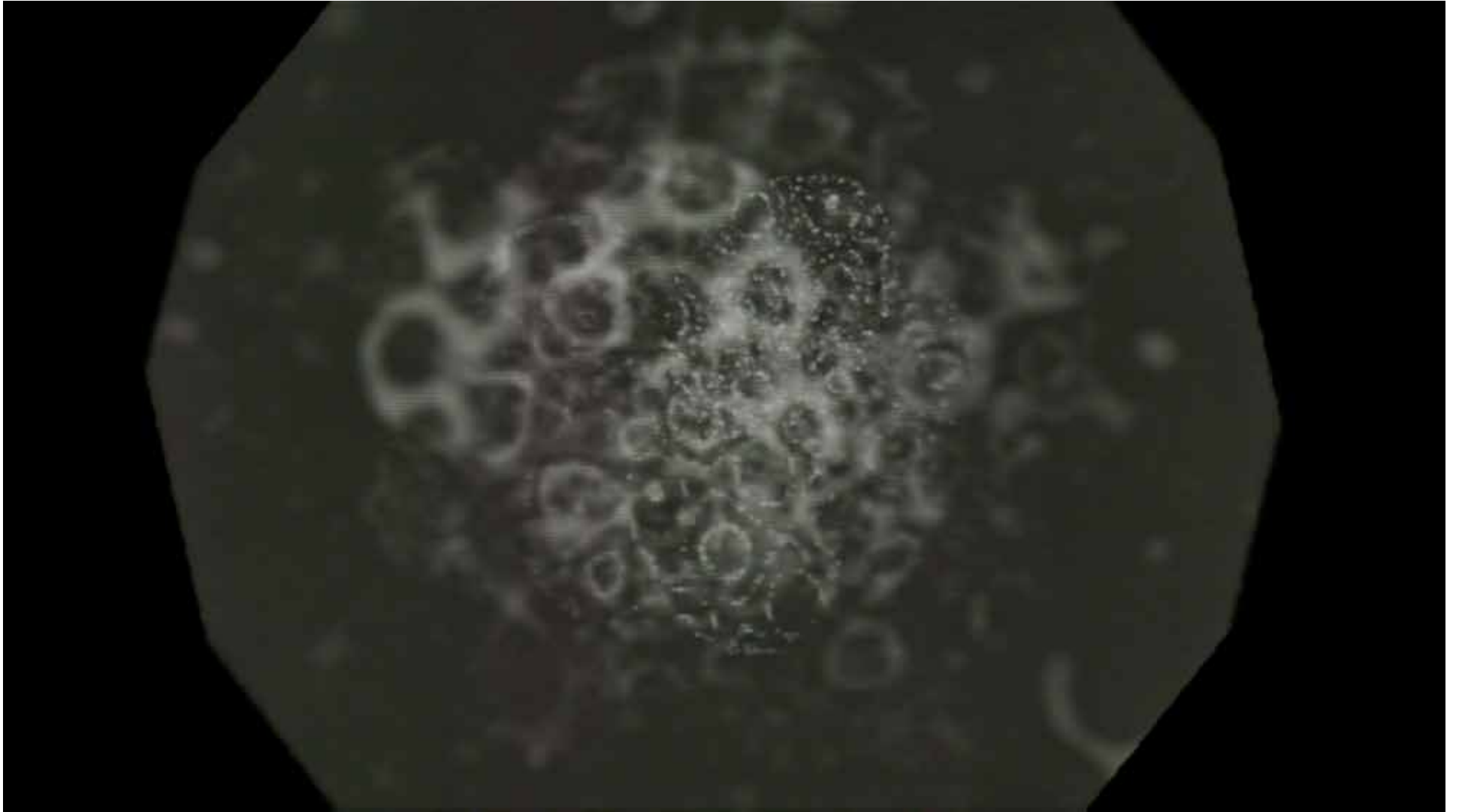
Inside View of Mask, 2019, single-channel video, 2:36 minutes





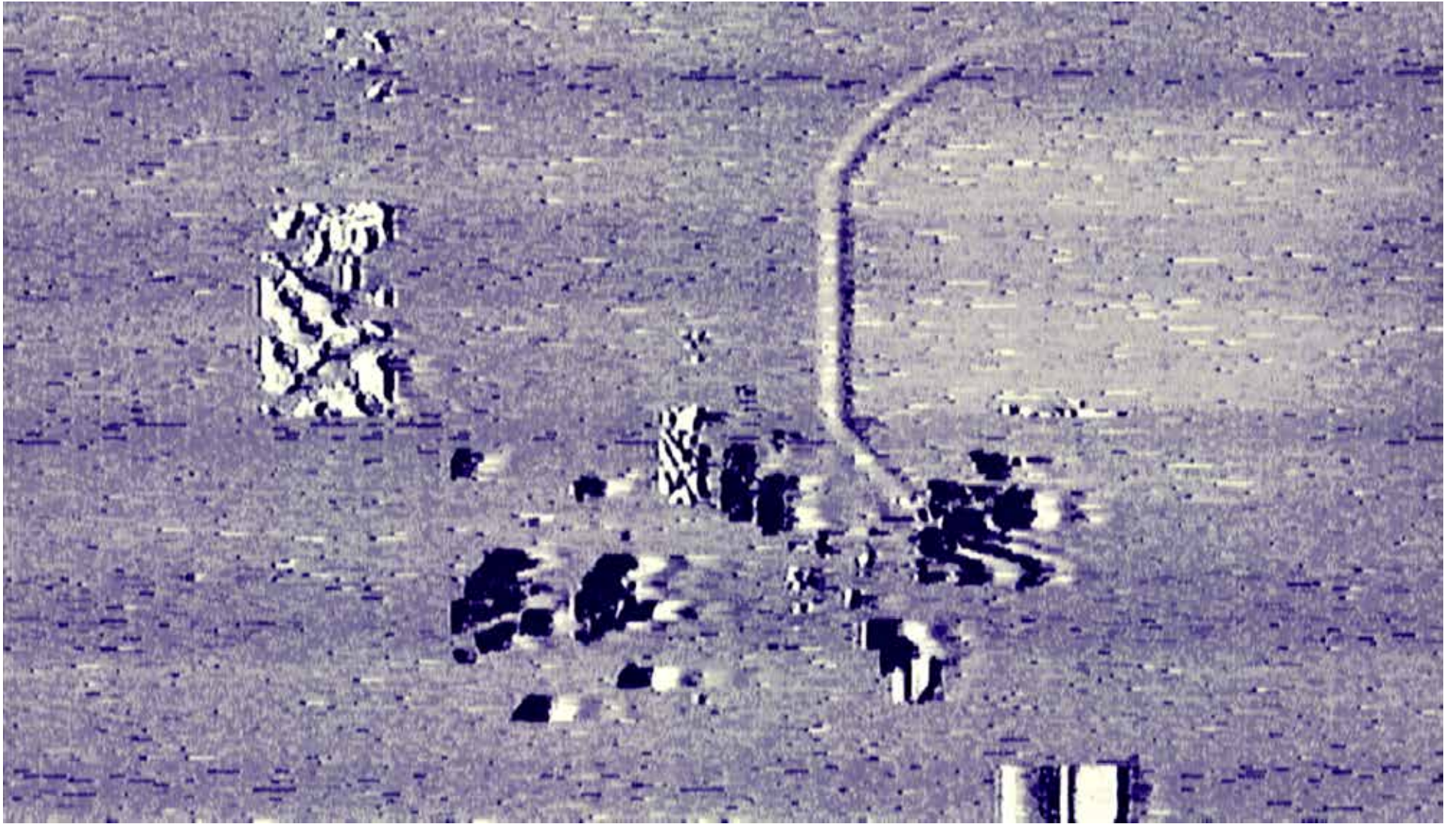
Windowscreen Trees, 2019, single-channel video, 4:07 minutes





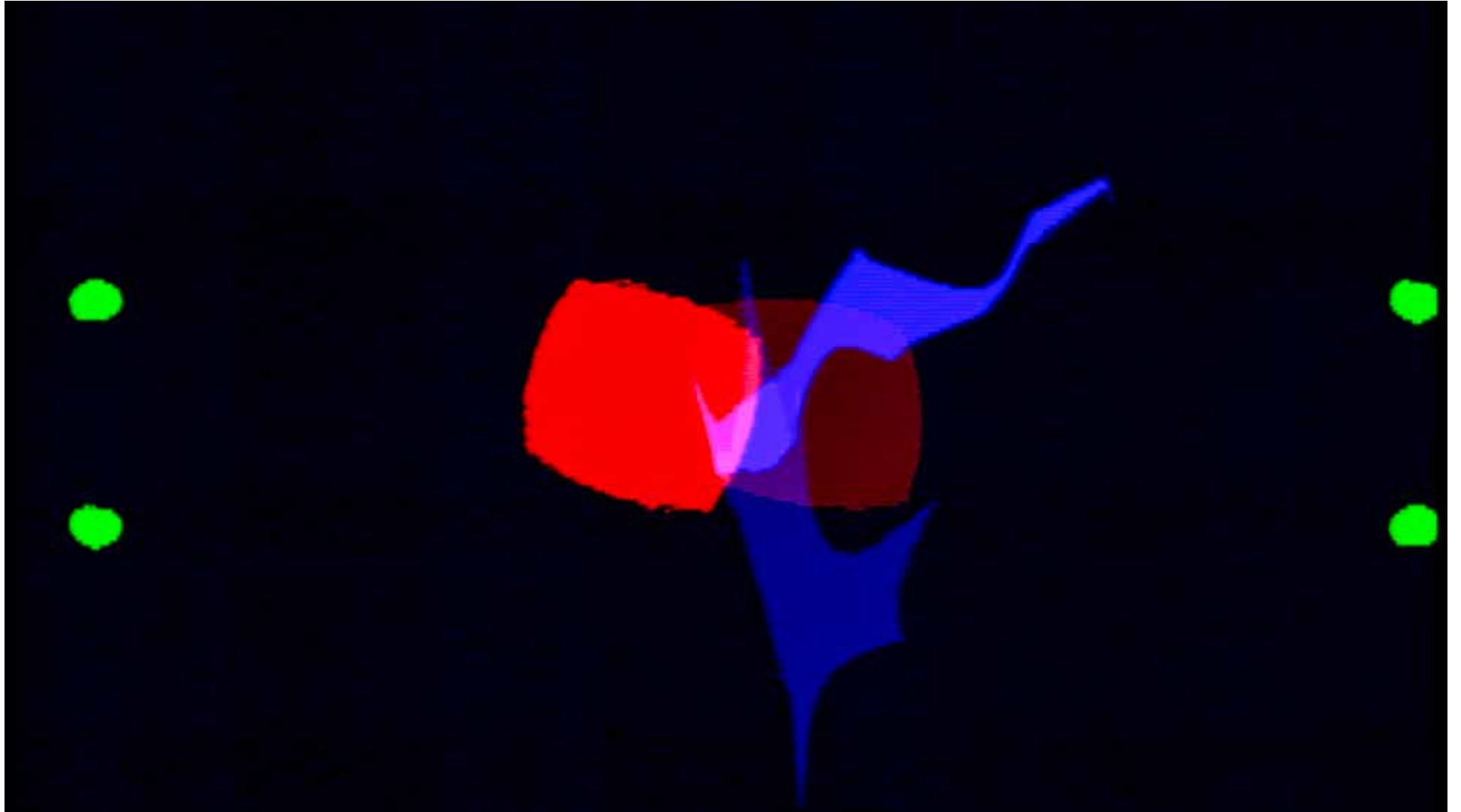








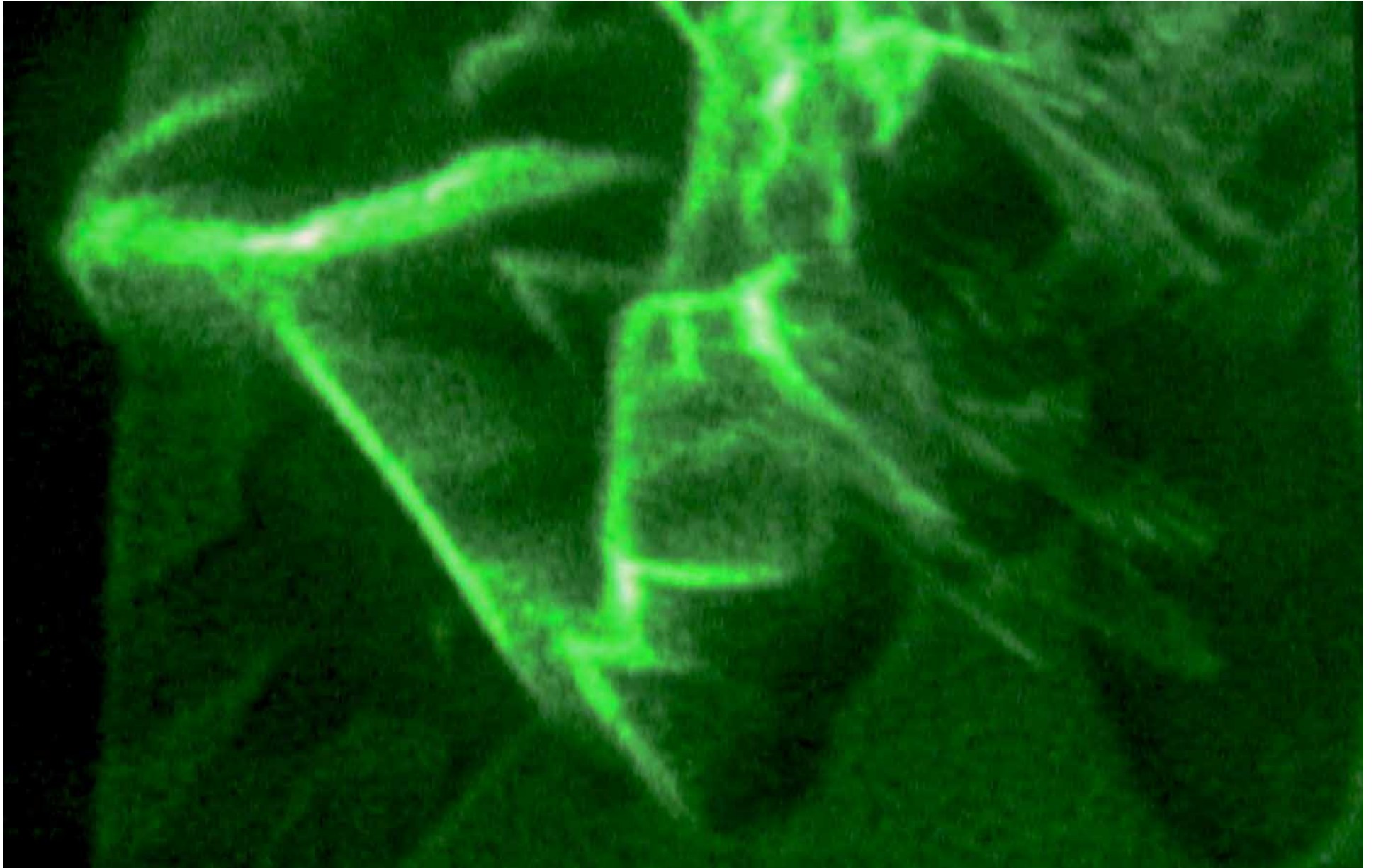






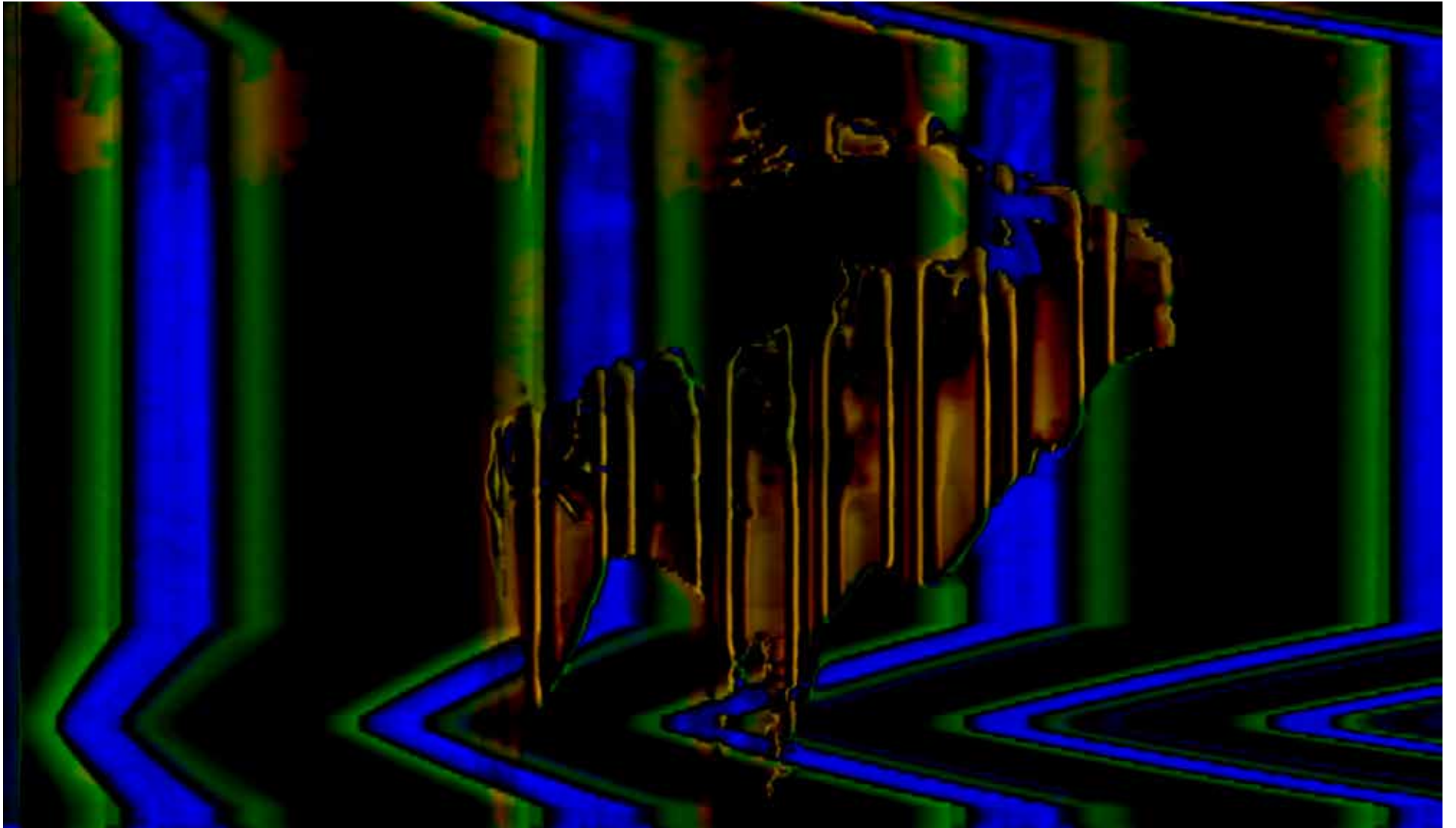


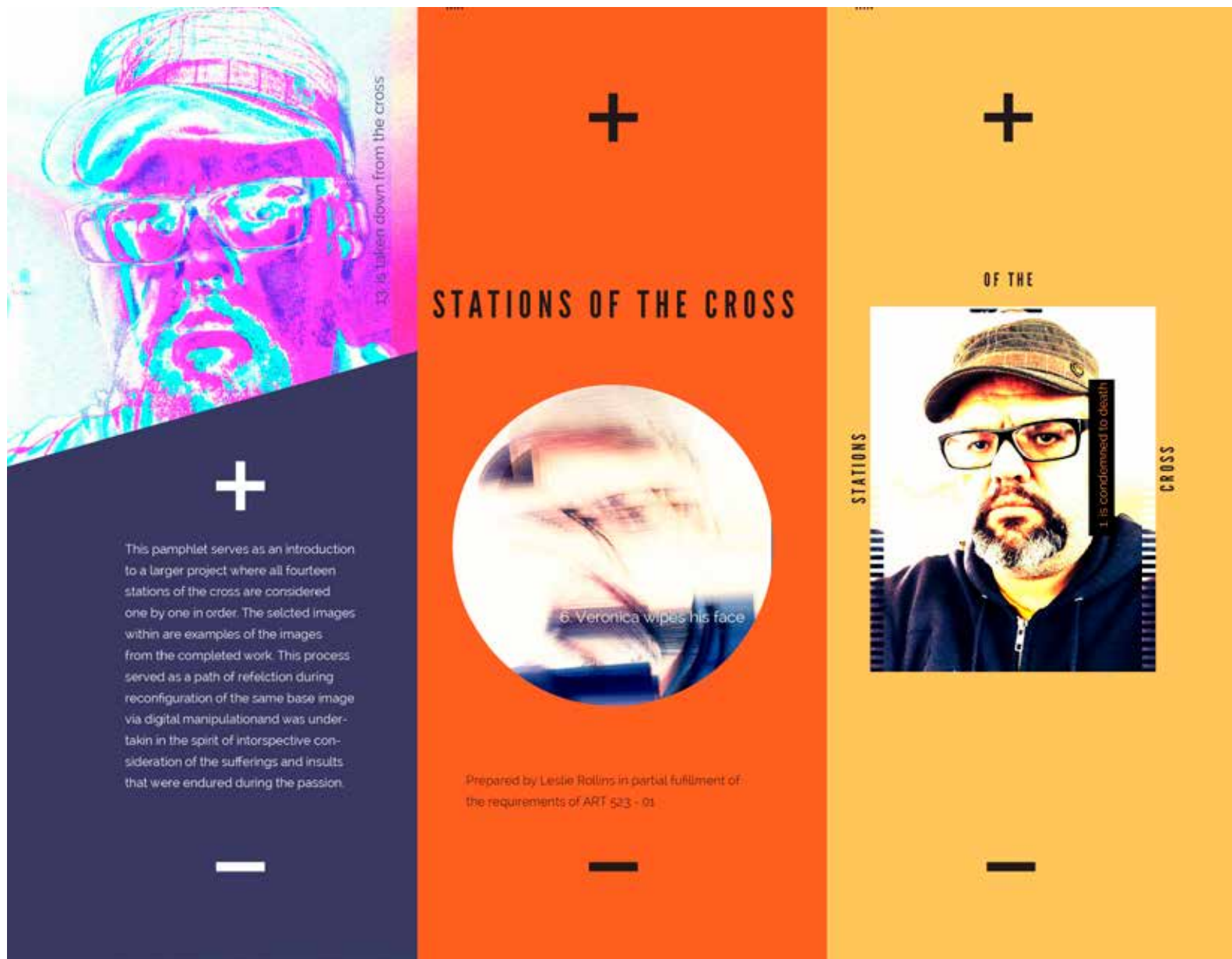
Left Hand, 2019, single-channel video, 4:37 minutes



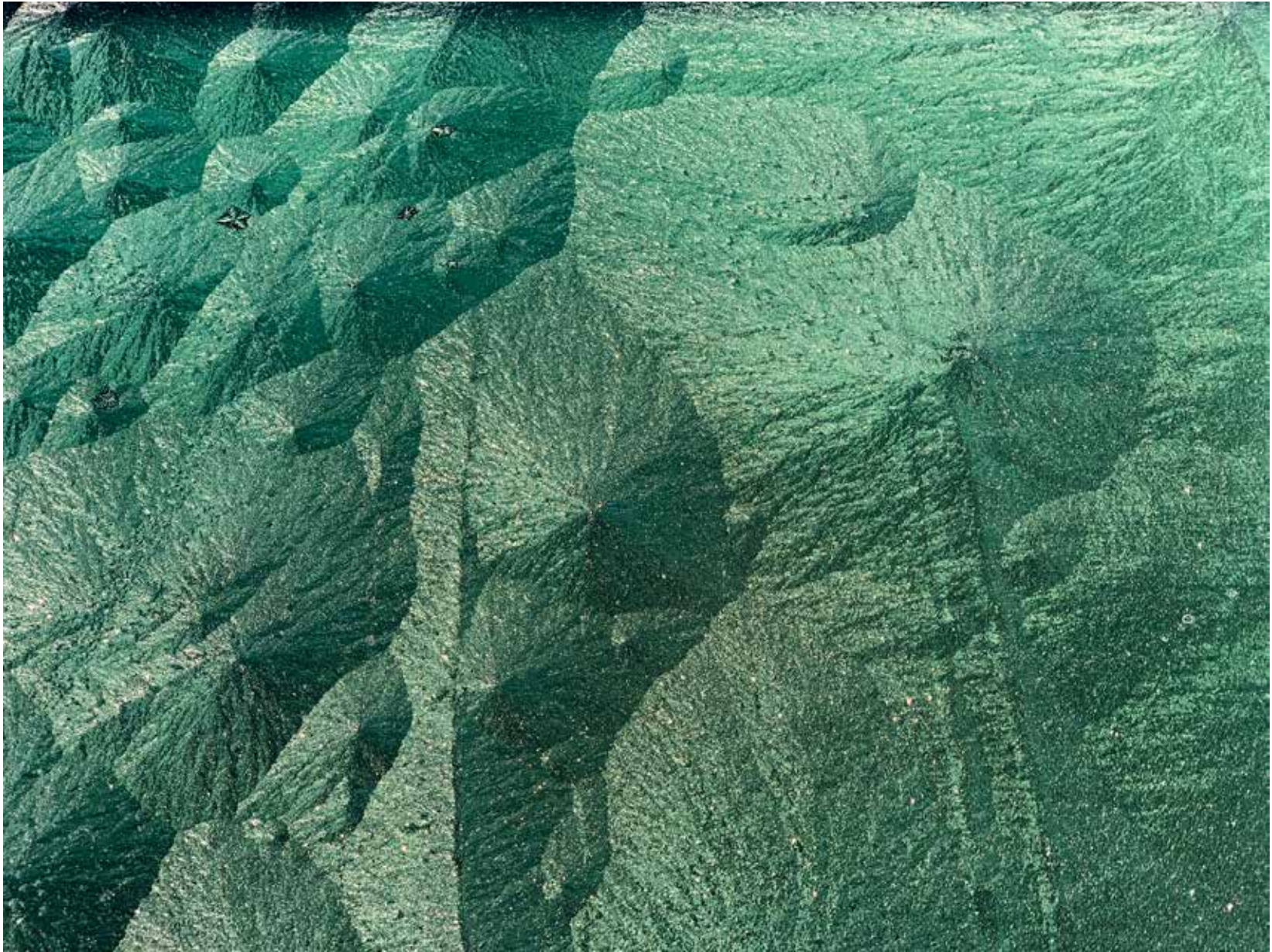


Snap, 2019, seven-channel video, 2:32 minutes





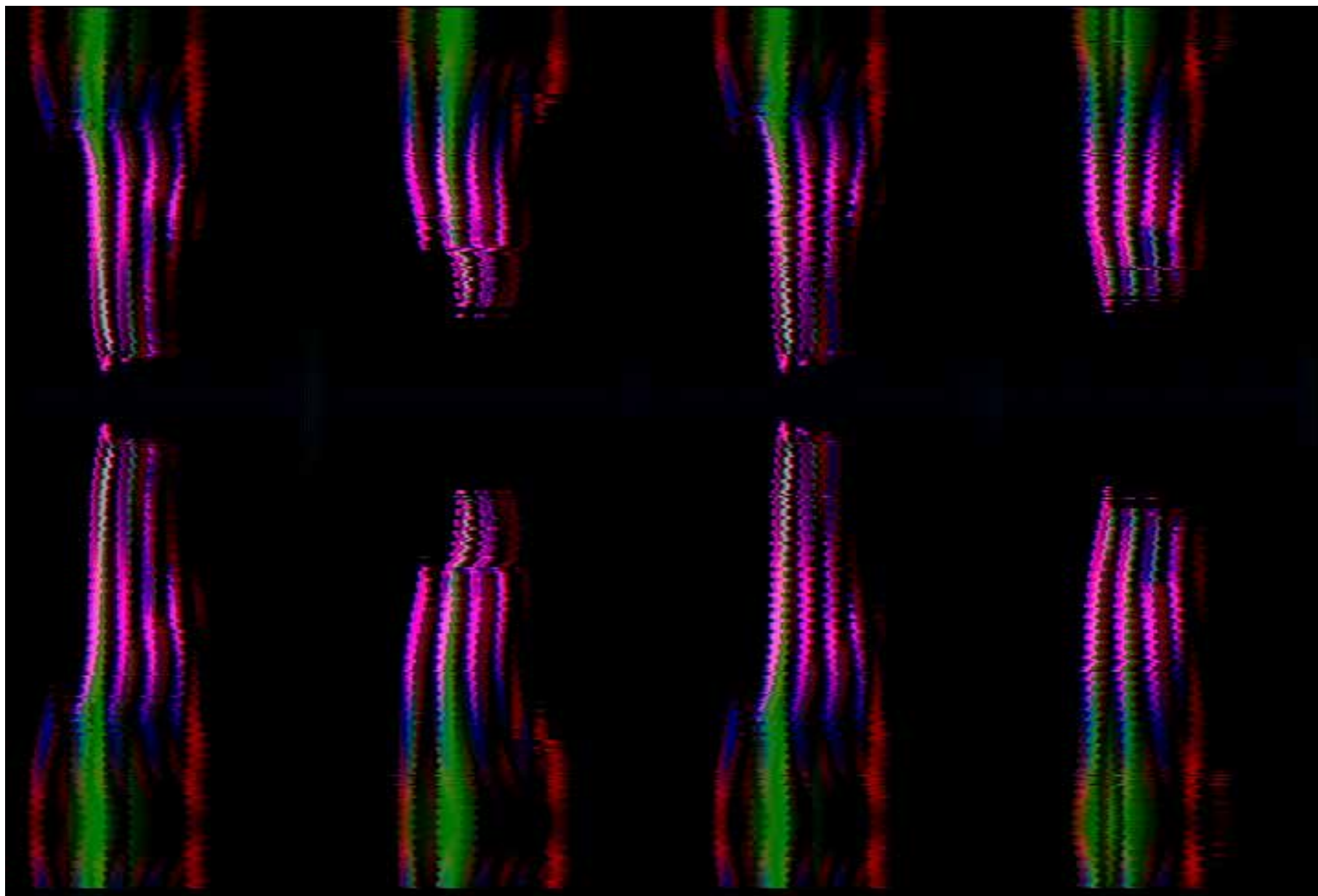
Stations of the Cross, 2019, pamphlet, 8.5 x 11



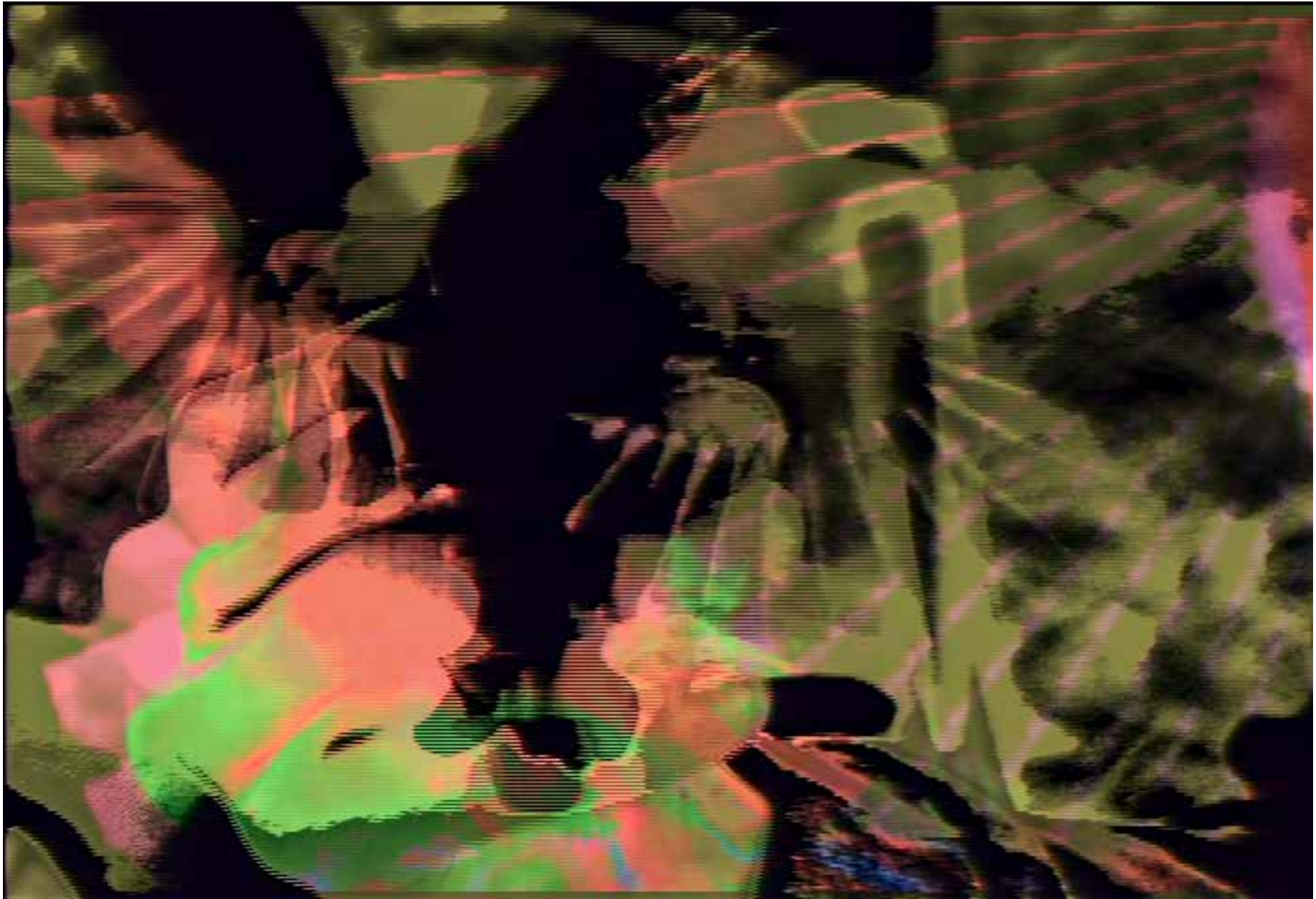


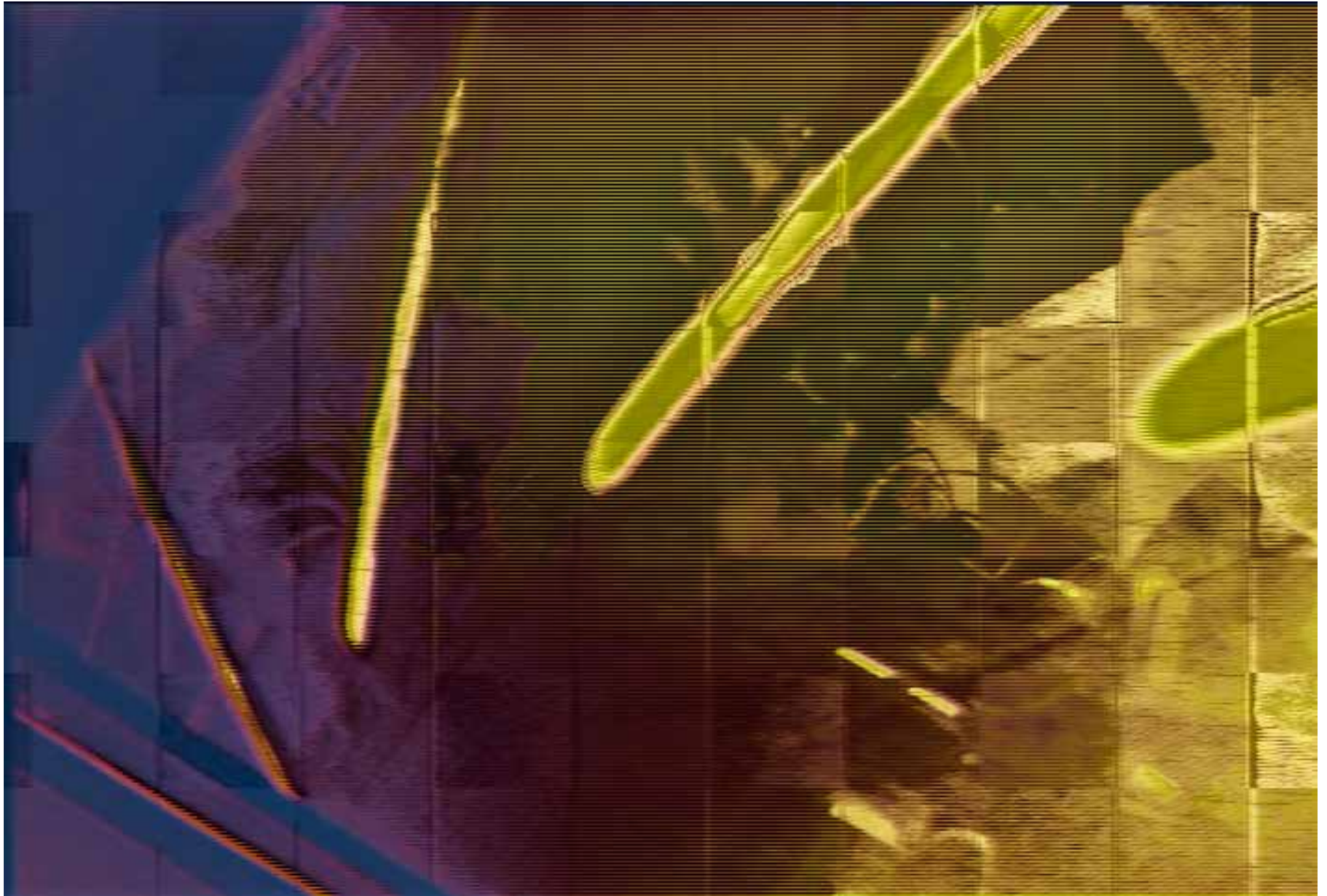
Road (Cover), 2019, book, 50 pages





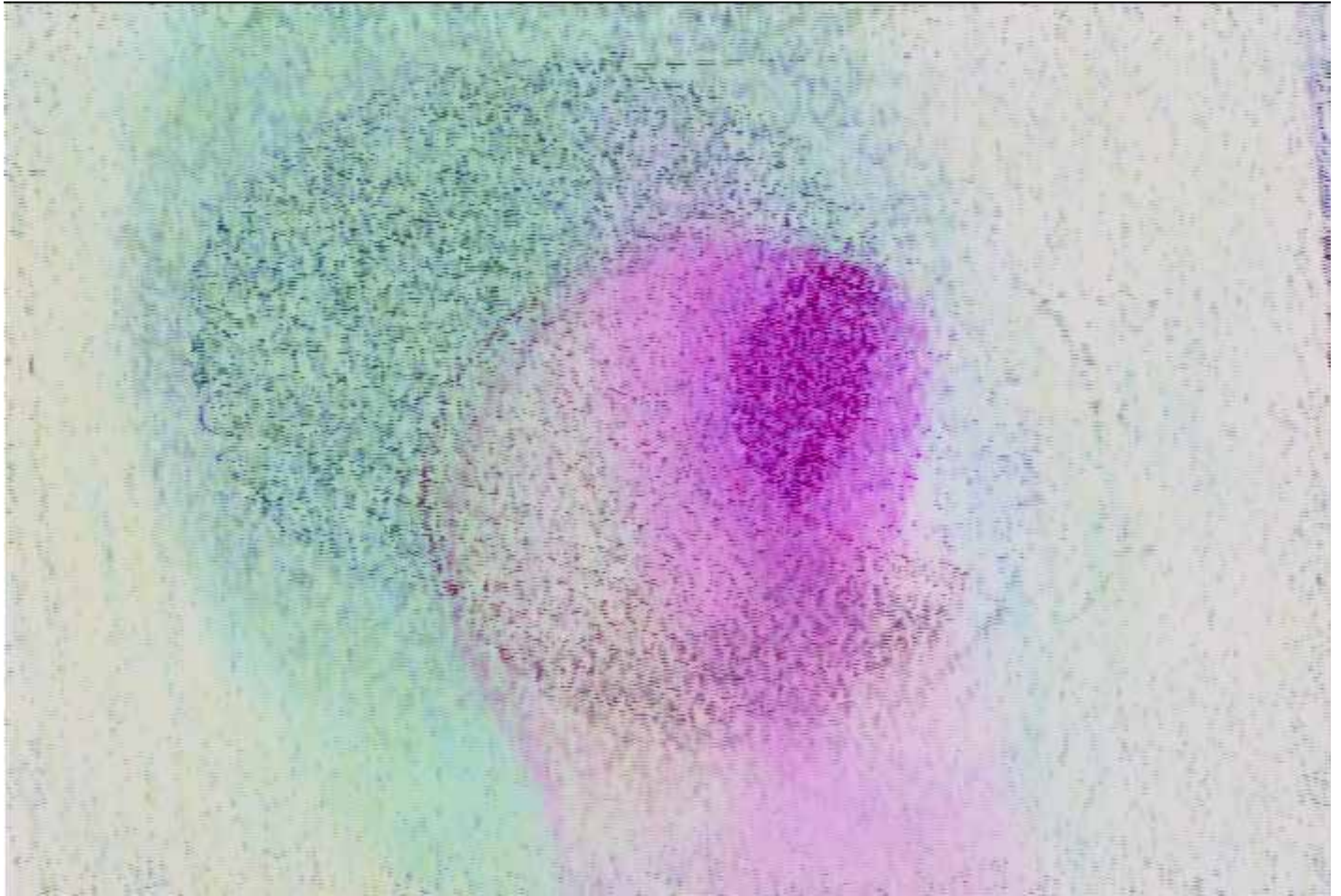
Under Reach, 2019, single-channel video, 0:36 minutes





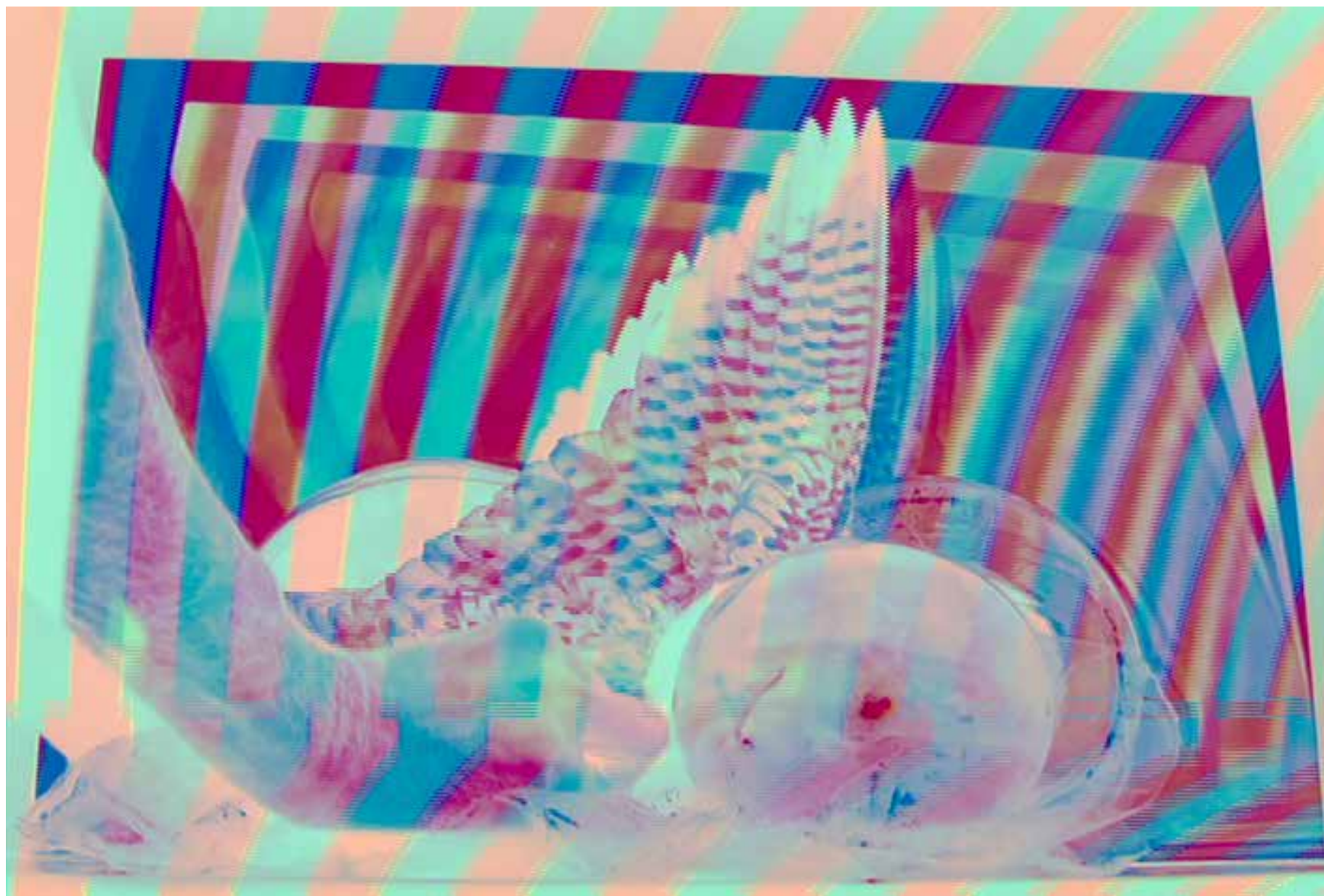
Fortress Feedback, 2019, single-channel video, 0:33 minutes



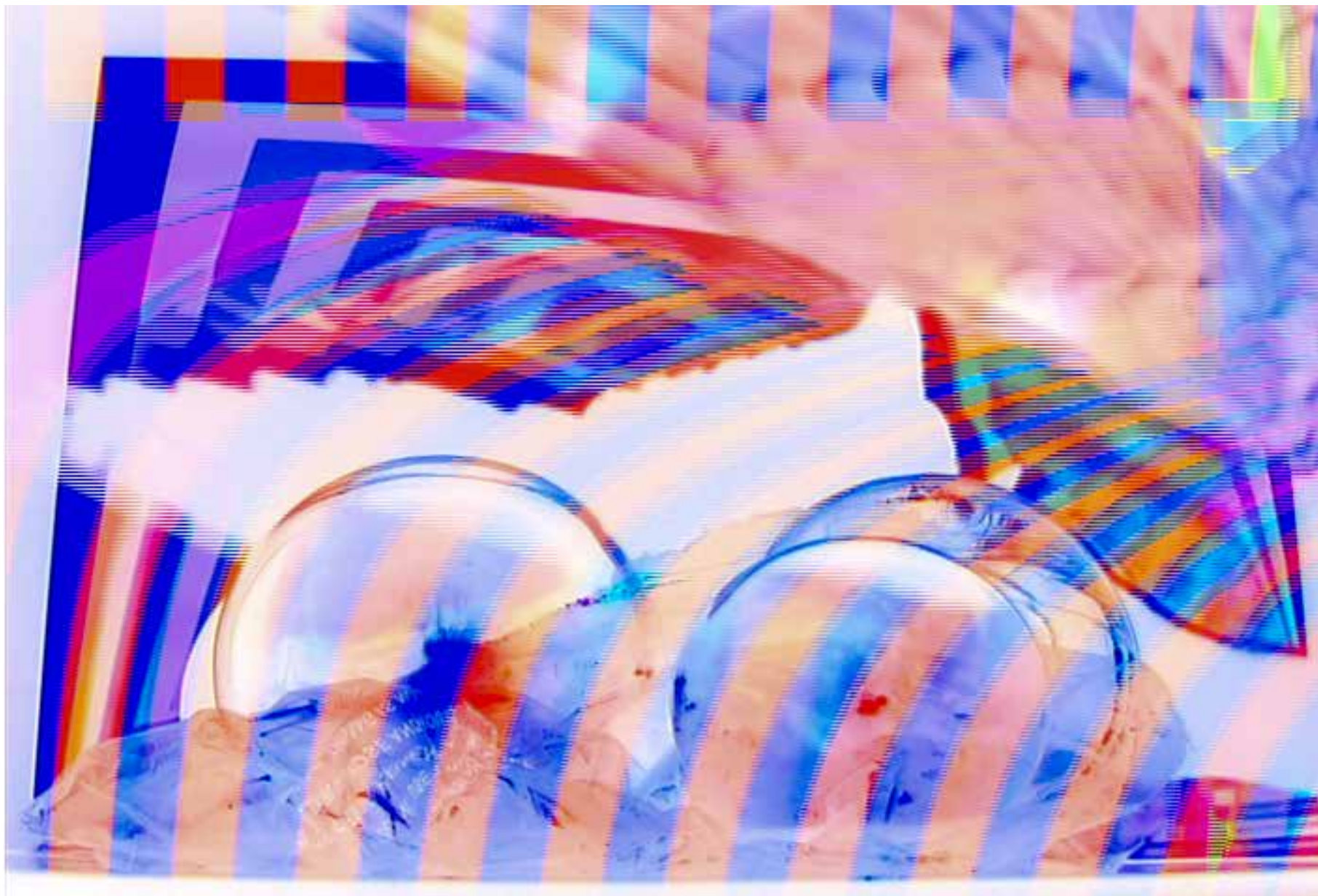


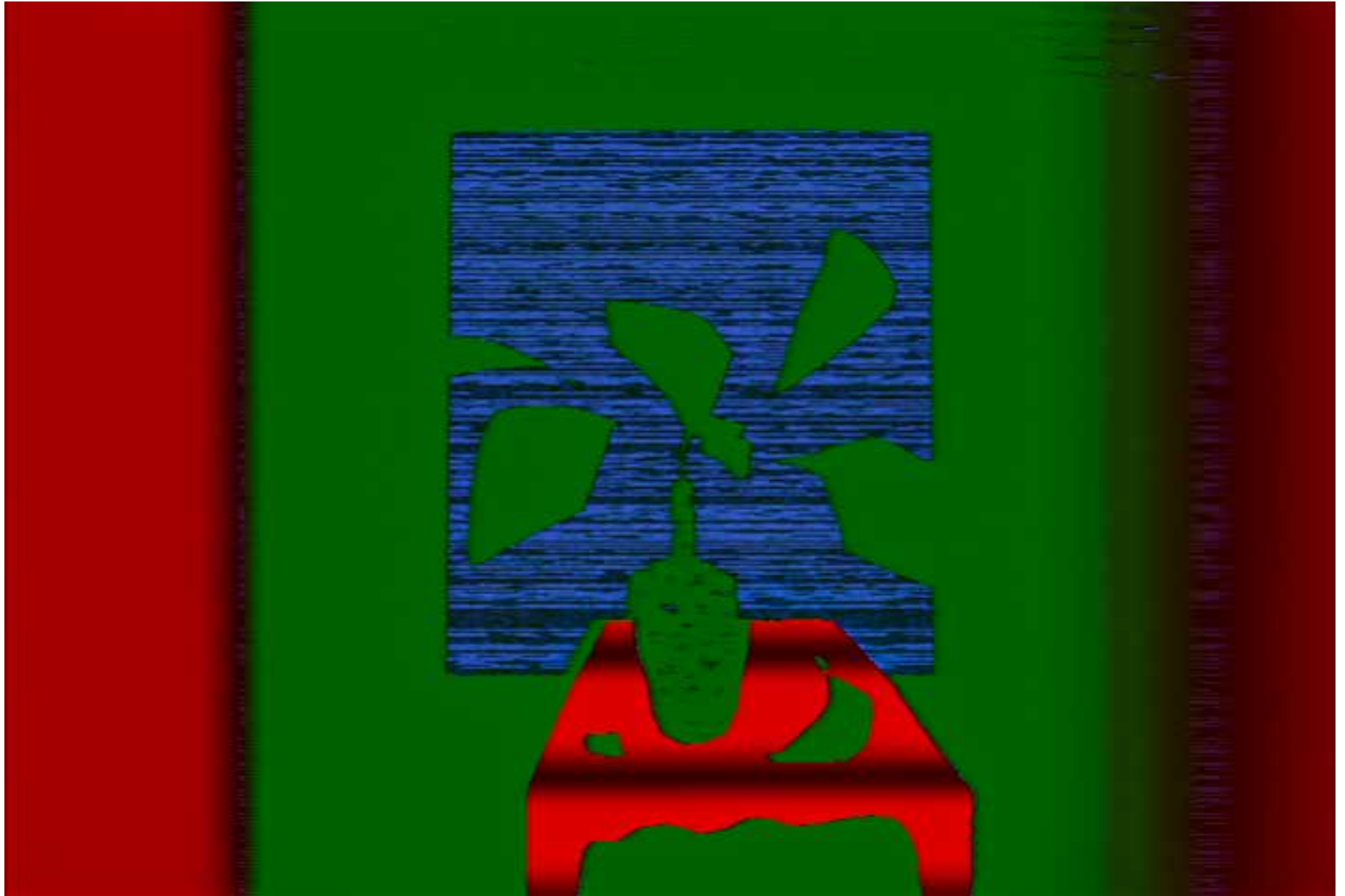
Spheres Studies (Animation), 2019, single-channel video, 0:35 minutes

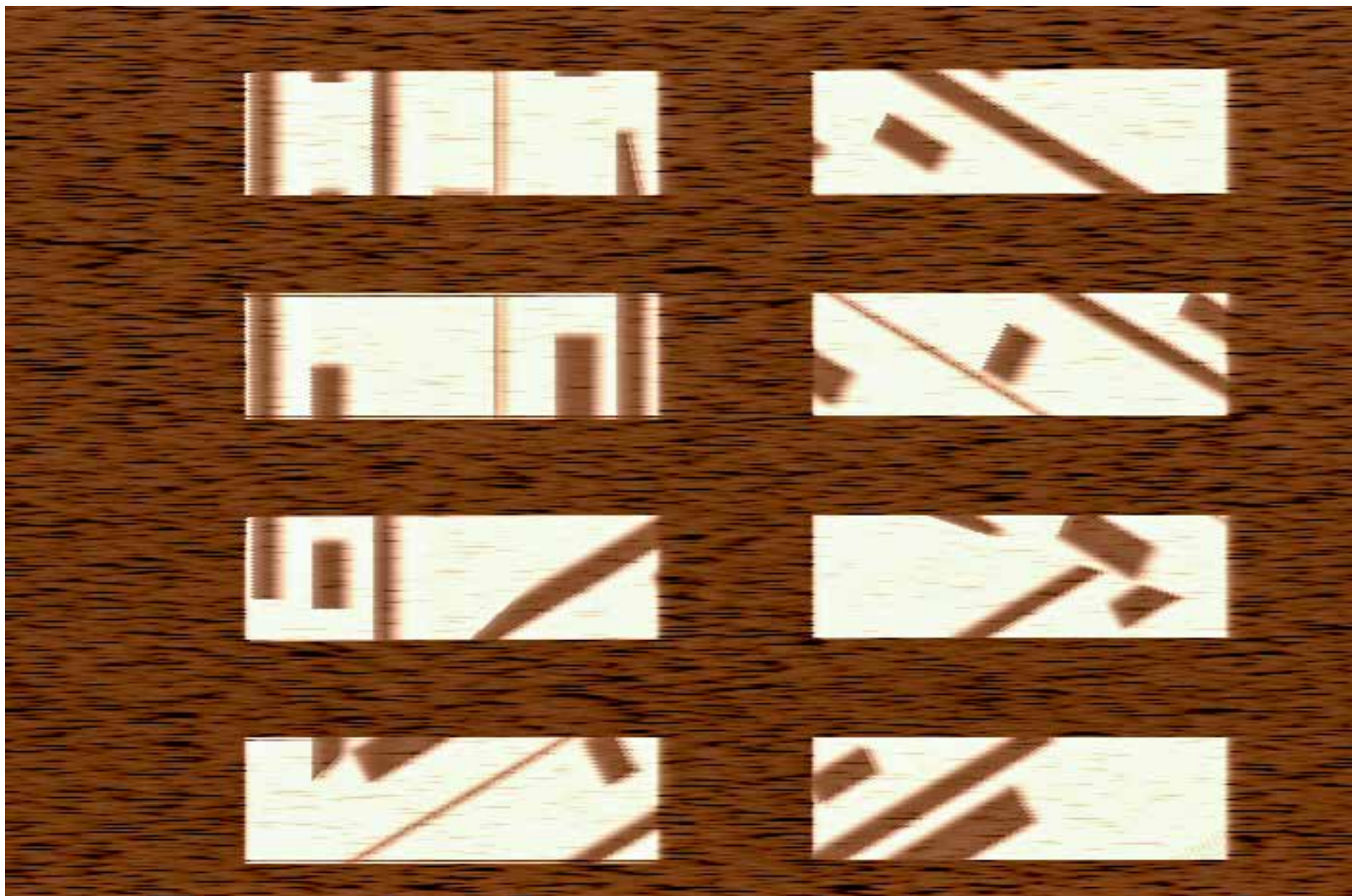




Wing Ceremony, 2019, two-channel video, 8:26 minutes







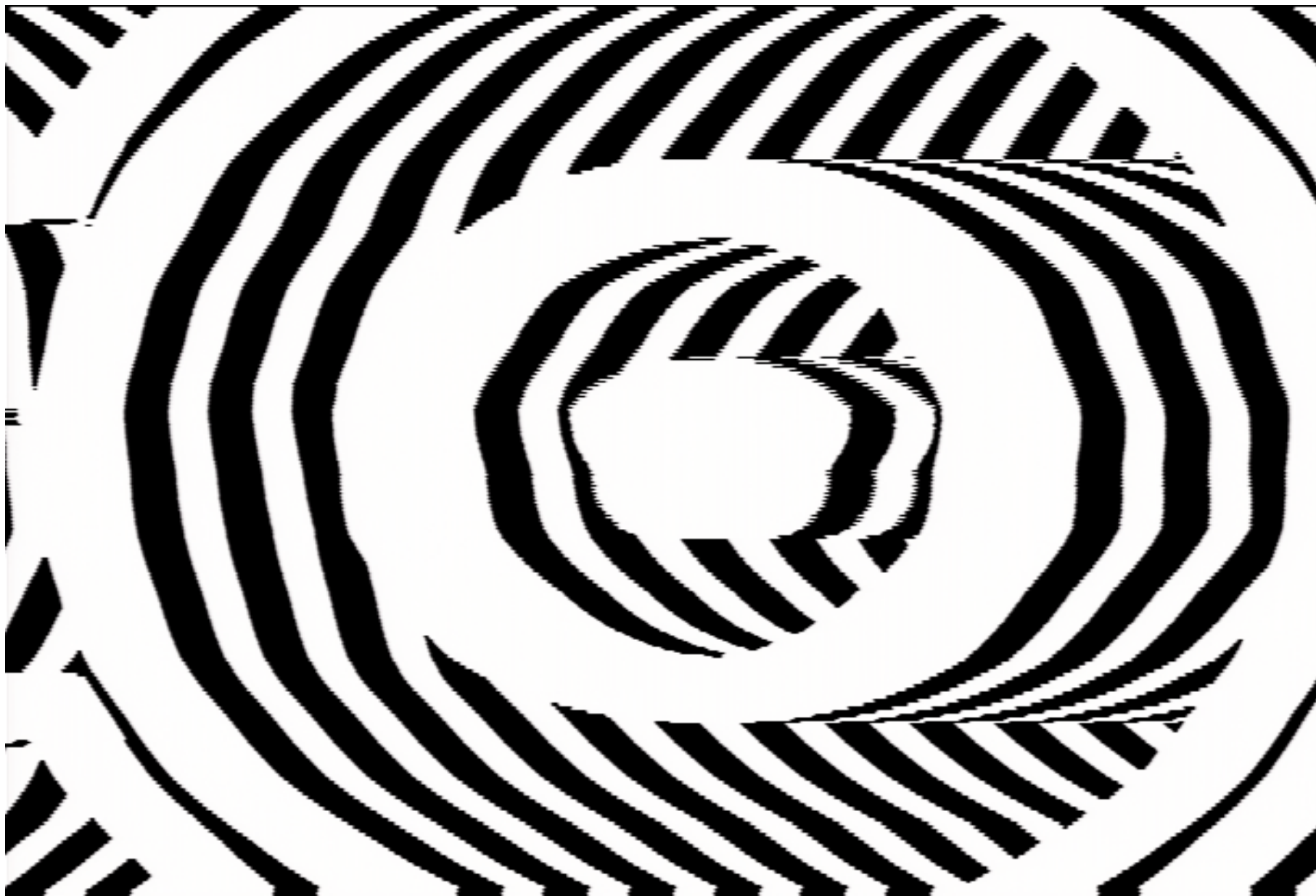


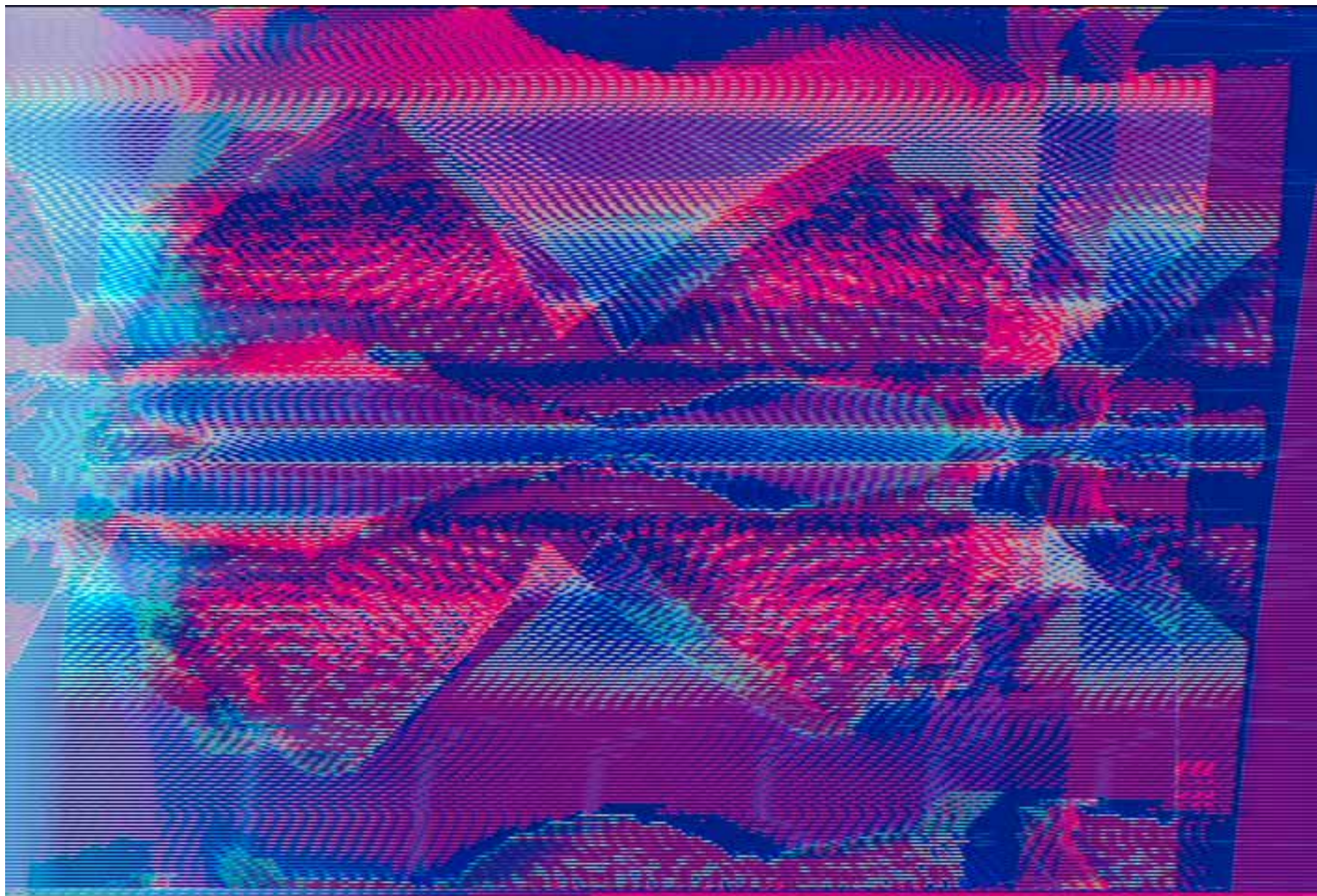
Falcon First Flight, 2019, installation, duration and measurements variable



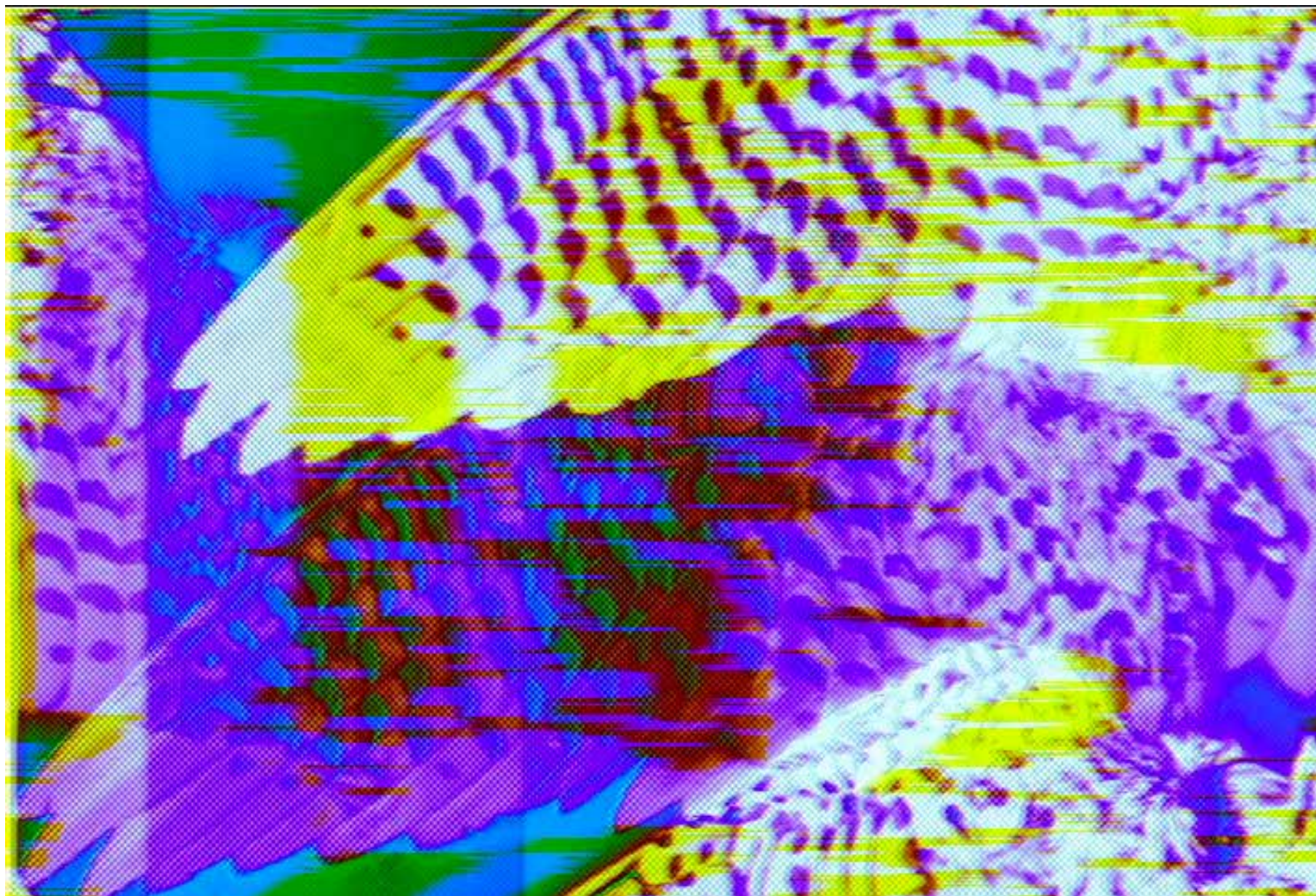


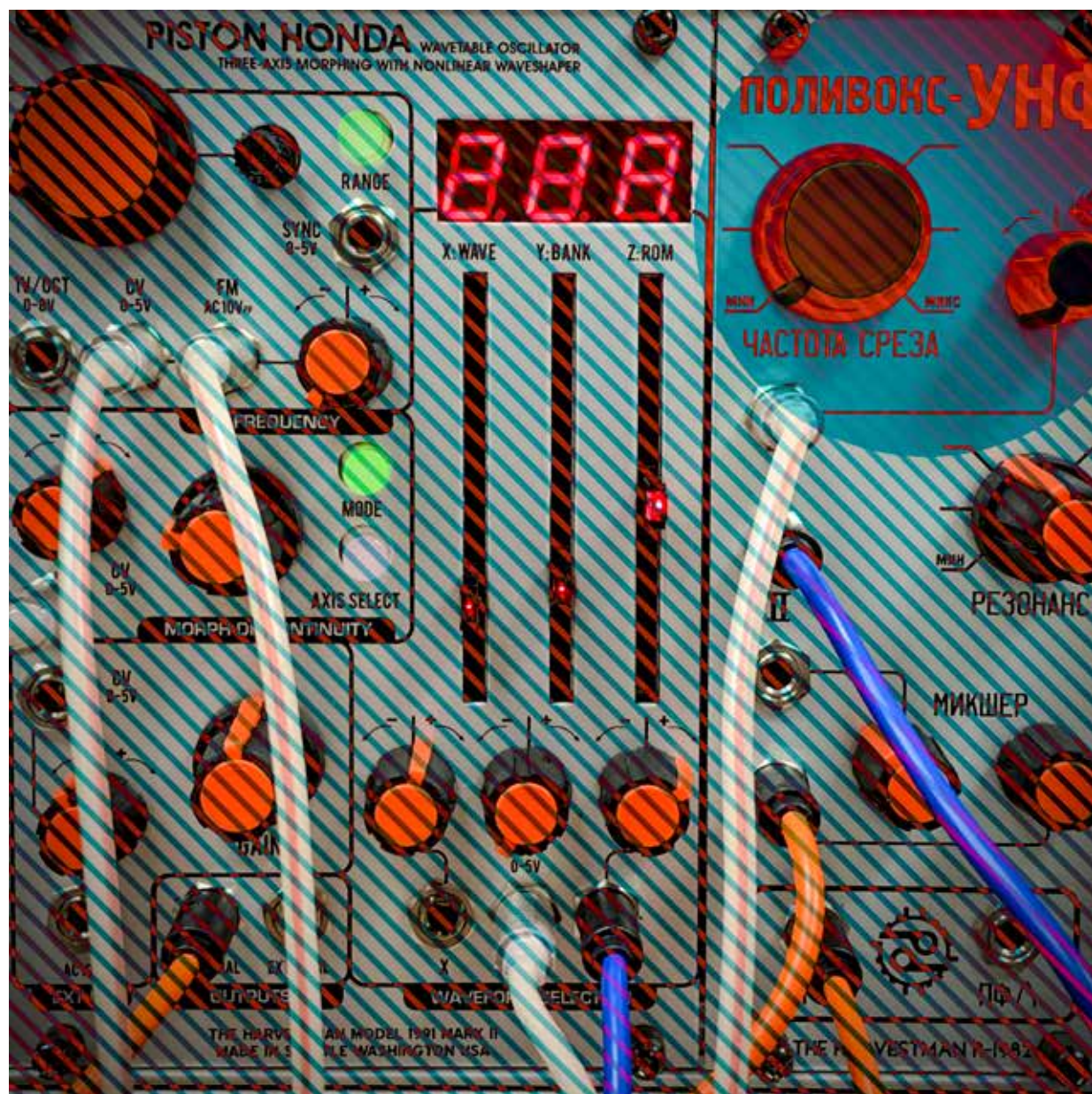
Enforcement, 2020, single-channel video, 6:02 minutes



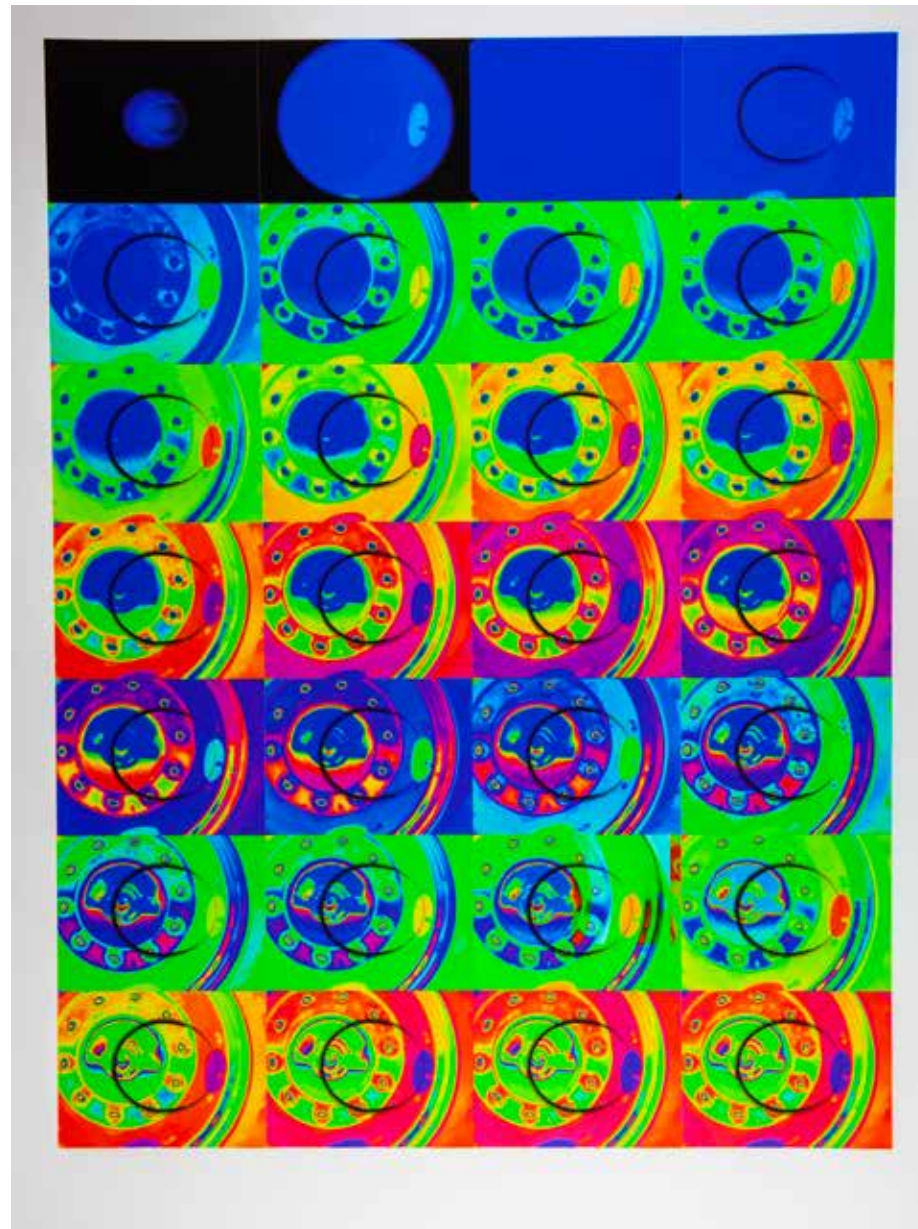


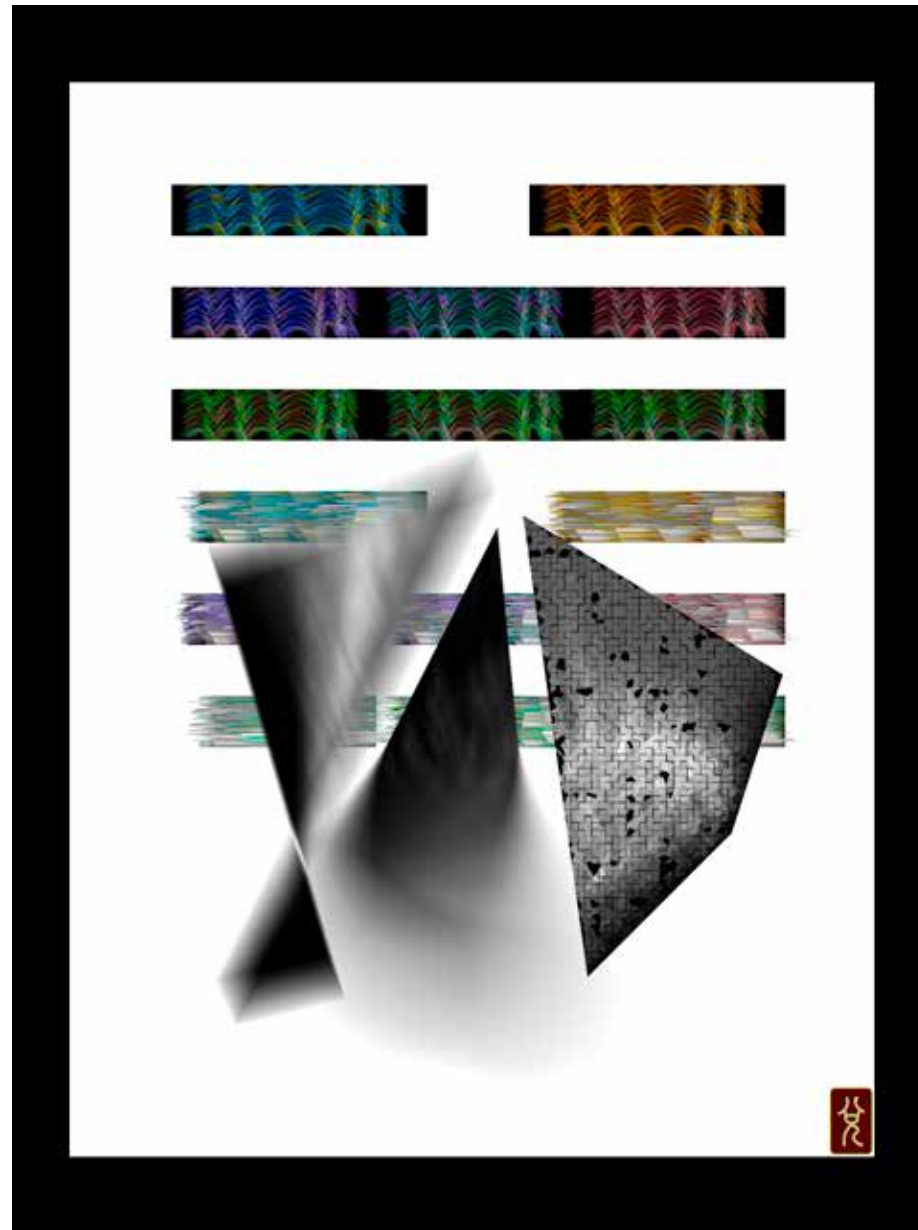
Torn Wings, 2020, single-channel video, 1:07 minutes





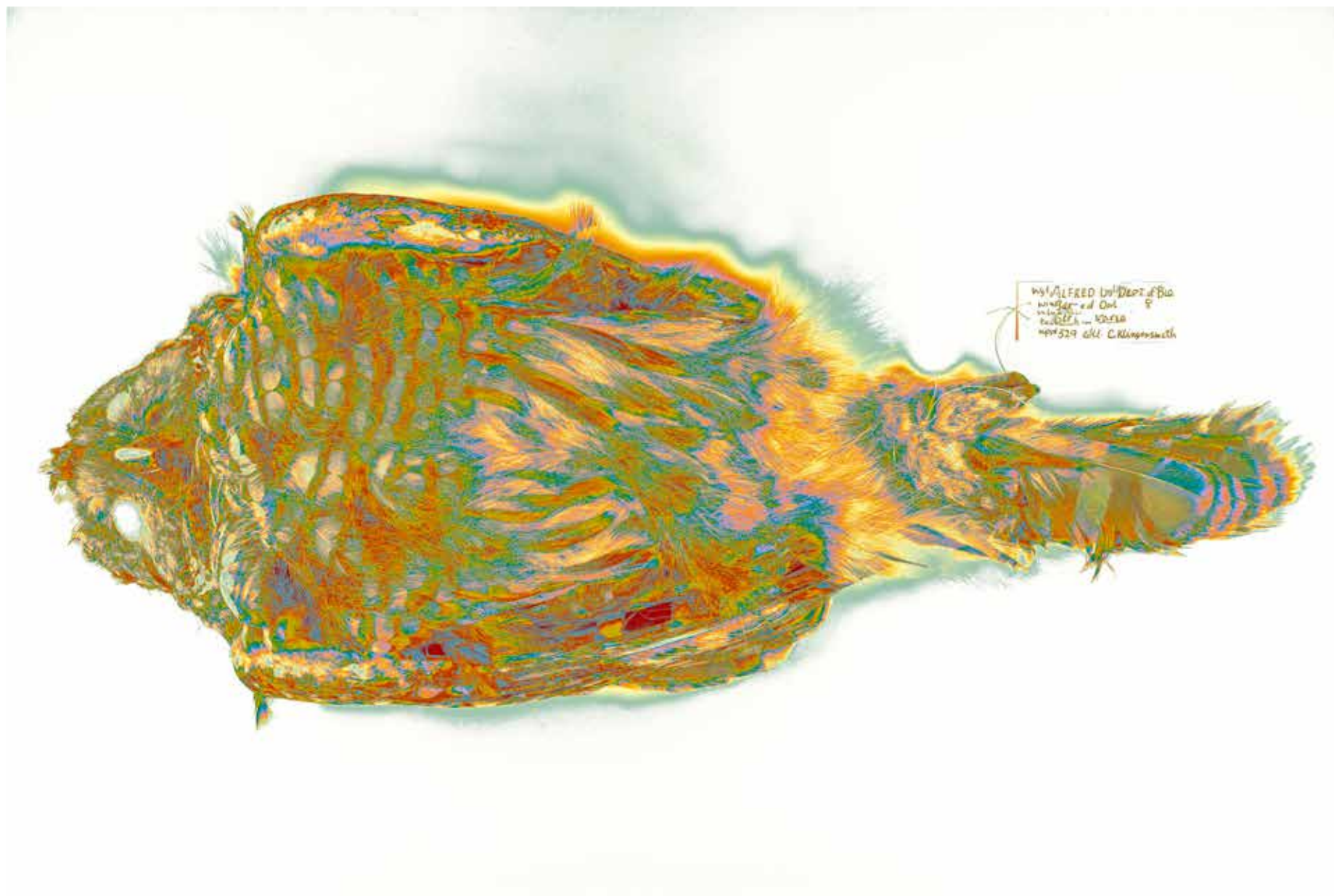
Meandering Wavetable for Polivoks Filter, 2020, stereo audio, 5:51 minutes



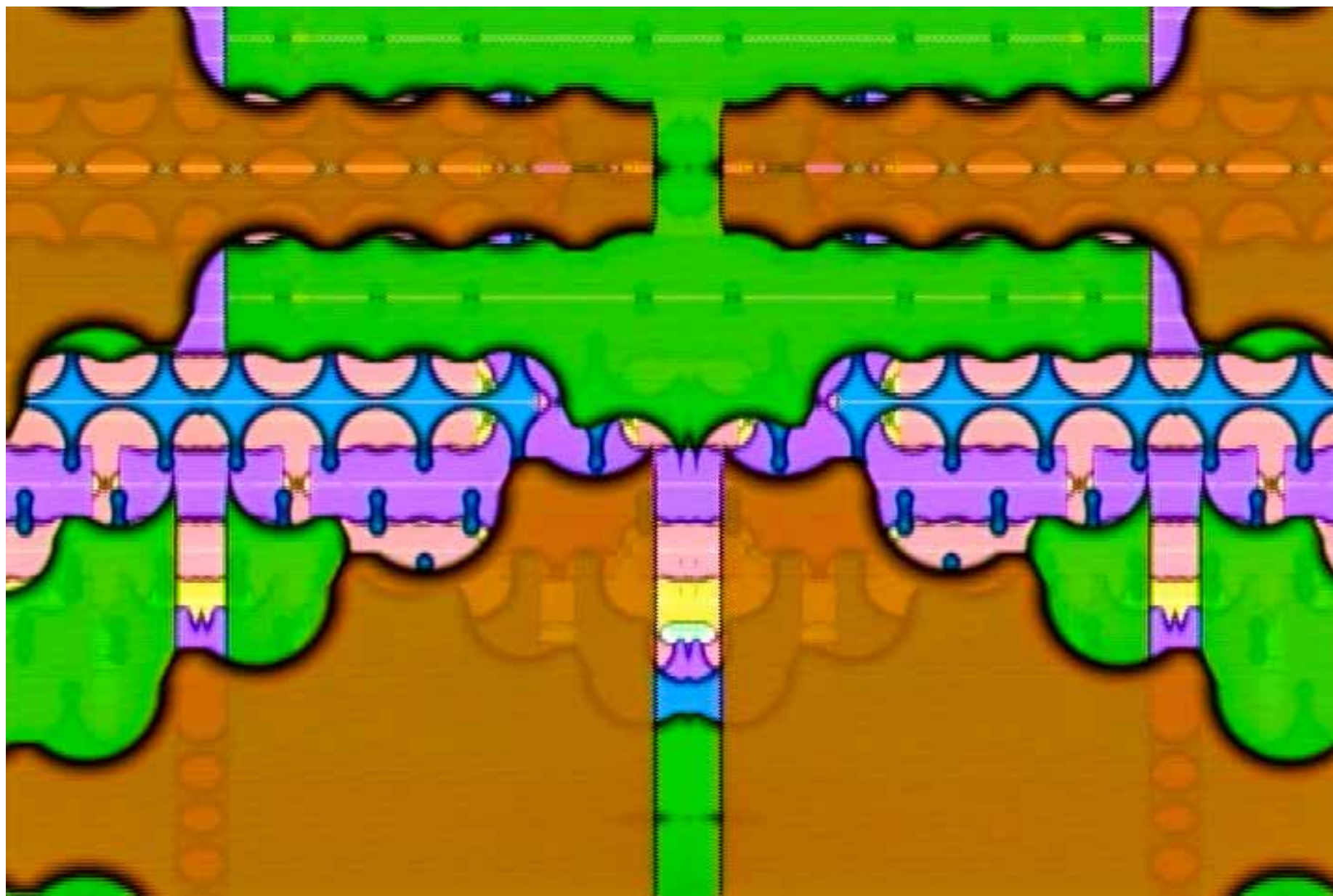


I Ching Hexagram 58, 2020, print, 18 x 22 inches





Owl Tritone, 2020, print, 18 x 22 inches



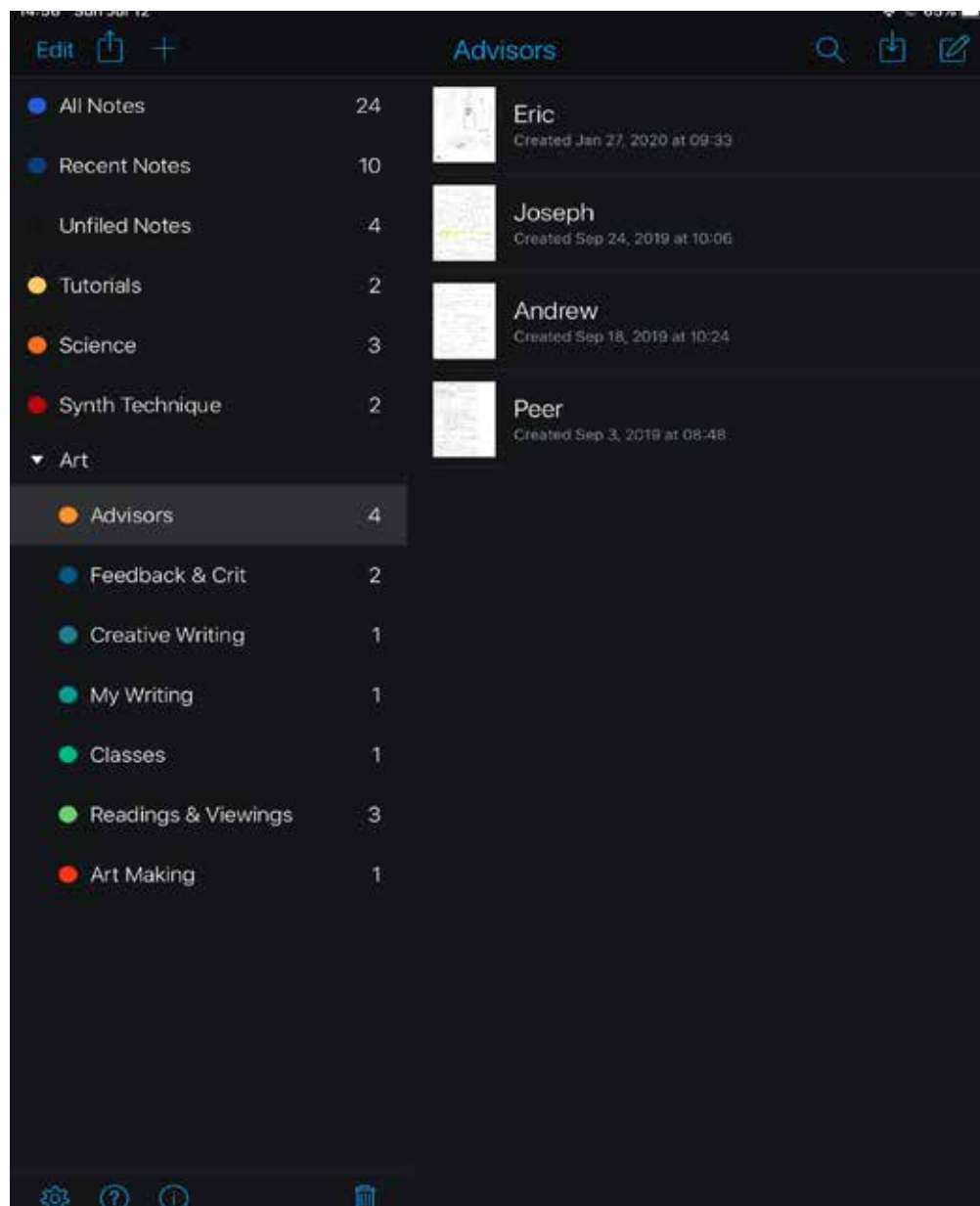
Research Notes

Research Notes

While I was in Alfred completing my MFA, I always had a paper notebook, an iPhone and/or an iPad, and often all three. I used them daily to capture details of my research and studies and to document my practice with photos and videos. I worked tirelessly to note the non-stop stream of useful information emanating from my professors' deep wells of knowledge of both process and history. My cohort never tapped the brakes in between classes, instead always game to compare notes and share ideas about artists and authors that connected in some way with our efforts.

That rich environment of active minds engaging in exploration and evolving discussion is something I love about being in school. I've missed its daily influence during the time I have been at home.

The following notes represent two of the buckets I frantically caught information in. The printed text files are from the Notes app on my phone, and the handwritten notes and drawings come from my iPad and Pencil and were captured in Notability (which I found up to almost every task I threw at it). The only missing repository of notes are my physical paper journals which I did not have time to fully scan for reproduction here; a task served by a future residency perhaps? Or, if you're really keen, come and visit and I'll let you browse the originals.



Honda Repair at Don's Automotive
Radiator
Timing Belt
Waterpump
Valve cover Gasket
Sparkplug holes have oil
Tune up
Oil Pressure switch dripping
Oil change

\$1500

Alfred details

Free counseling services:
Call Kim at: 607-877-2400
Set up with Elainea (1/2 hour)

community bank
serve u credit union
steuben trust

Bill Stewart
ceramic maintenance across from parking lot low brick building
steps far from dock
straight ahead

Eric works with Bill Stewart and helped with keys.

244 245 key code: 8 [REDACTED]

All my physical keys are for 5th floor, key card for Harder Hall exterior doors after midnight.

BMH 106 is room C

TSI Time Space Interface is where Brian's stuff is displayed

Andy hates texting but takes calls until 11PM

Will Contino 1 advisor, email him and let him know I'm here to arrange time to meet with him

Barb Latanzl 2 advisor

Contact Angle To to arrange TA

C [REDACTED] Andy home

Wife cell: C [REDACTED]

Endnote, Refworks, Zotero, Mandalay
Art history guide, writing & citing
Chicago Style most likely

How many kilns? 40-ish

What is the largest? 6 foot by 4 foot

Smallest? Tea cup

Overlook Merrell good winter boot. October they get their boots

Common Eia password:

[REDACTED]

Allegheny County Department of Health
Belmont

Titers not immune

MMR

585-268-9250

Rose Areas of concern for me are:

- multiple stains on the carpet
- damaged surfaces on the counters
- non-functional condition of parts of both kitchen sink and tub/shower plumbing
- broken doors for kitchen cabinets and front room closet
- broken kitchen drawer
- nails and holes in the walls where things were previously hung
- edge of stove surface is peeling away near sink side
- is it possible to increase water temperature?

I value abstraction in my art as I experience it as an accepting space.

Zachery Taylor work study aid for EIA, deals with sign up sheets, and knows the equipment

Sign out 3-4 hour blocks on Mondays

Mark or Don for all computer issues

[REDACTED] department copy code

[REDACTED] student copy code

Anthony Gallow speakers

Academic reference programs:

Mandalay
Zotero
Endnote

John the librarian can answer jstor questions

yvonne spielmann

Society of Cinema and Media Studies conference, ask Andrew if we can go

Chris Moys Andrews

Vito Acconci
Theme Song
Come on

Coagula XP audio software
Morgan Higby Flowers

Advanced Electronic Arts (Scheer)

Tuesday September 11:

Played Dawn Speer and discussed process. He felt a desire to move through and interactive space and we discussed the possibility of an environment with the field recording as a glue, and the perhaps the particular field sounds (cranes, frogs, geese, etc) and composed sounds could be triggered by a visitor's movement in the display space.

He mentioned local spot: Kettle Lake Bog

And also compared elements to Gary Hill's Tall Ships

Staff of Holmes auditorium: Evan Linza phone 607 871 2167

"Talking about music is like dancing about architecture"

Anderson's direction is varied and competent on the whole. But some of the slogans flashed on the rear screen projections ("Talking about music is like dancing about architecture") rush by so fast that the jokes are easily missed."

[PNLA] 1986 July 18, Philadelphia Daily News, A Sense of Laurie Anderson by Jonathon Takiff, [Review of "Home of the Brave" by Laurie Anderson], Page 43, Philadelphia, Pennsylvania. (NewsBank)

"Strictly considered, writing about music is as illogical as singing about economics. All the other arts can be talked about in the terms of ordinary life and experience. A poem, a statue, a painting or a play is a representation of somebody or something, and can be measurably described (the purely aesthetic values aside) by describing what it represents."

[NRSE] 1918 February 9, The New Republic, The Unseen World by H. K. M., Page 63, Vol. 14, The Republic Pub. Co. (Google Books gives an incorrect date of 1969. Quotation verified on microfilm)

http://books.google.com/books?id=Q2ICAAAIAAJ&q=%22singing+about%22#search_anchor

PUBLIQuartet NYC, 9 years, Public Access program to commission new works Freedom and Faith new album featuring women composers. Forthcoming residency at The National Sawdust Factory, suspended from springs in NYC to avoid subway sounds

Jesse Montgomery (Smoke from Break Away)

Ella Fitzgerald A Tisket A Tasket

Jessica Meyer Getting to the Now, Years of Envy

Santa Familia Mind the Gap Von Bingen

Nina third movement technique notation marking: harmonic glissando. Use arrows/lines to indicate desired pitch directions.

Road trip with Rebekkah Palov to BASILICA SOUNDSCAPE 2018

Attended Community Spaces in The Underground panel

Gerald O'Grady hired Tony Conrad:
<http://www.vasulka.org/archive/Artists4/O'Grady/general.pdf>

Jon Weistead University Milwaukee synth electronic lab:
<https://uwm.edu/arts/directory/weistead-jon/>

New Media PHD programs:

Media Study PHD Buffalo:
<https://mediastudy.buffalo.edu/programs/graduate/phd-in-media-study/>

DXArts Seattle, full ride PHD :
<https://dxarts.washington.edu/dxarts-phd>

VCU Richmond Media, Art, & Text PHD:
<https://matx.vcu.edu/>

RISDI and MICA supposedly have PHD programs?

RPI:
<http://www.arts.rpi.edu/pi/doctor-philosophy-electronic-arts>

Social Practice

Brett Hunter SDS Head. Social Practice contact

One site after another miwon kwon

Conversation pieces grant kester

Pablo Helgurea Education Socially Engaged Art

Creative Tome granting agency, & conference

Steve Lambert interactivity

Creative Art Ensemble

Eric Souther's recommendation: How Forrest Think an Anthropology of the Non Human

Process Journal: Book the First

The assignment for William Contino's Work and Analysis class to create a 32 page 11 by 17 book/ zine presented me with a number of challenges related to my technical experiences, or rather lack of experiences. The last time I used any sort of page layout software was in Page Maker, so things have changed quite a bit in the intervening years. Fortunately my experience using Premiere and Audition in the Adobe Creative Cloud Suite had at least partially acclimated me to some of the concepts, shortcuts, and views used across the applications. This was also the first time I had such easy access to a variety of printers and processes. It took several passes within the nested settings for the Toshiba printer. Something as simple as content orientation (landscape or portrait), and the finishing options for folding (short edge) and stapling (saddle stitch), took time to learn and apply.

For the actual process of gathering content for the book, I decided to capture aspects related to my daily ritual practices of honoring the spirits and directions. Having seen the results of Joseph Scheer's moth scans which utilize and special

scanner which allows for very precise scan depth, even at heights above the glass, encouraged me to work with scanning three dimensional objects using the new Epson scanners in the lab which were said to offer the same feature. They don't. William and Mark and I sat and wrestled with the settings, manual, and web searches to see if anyone had worked out how to get that feature to work...and we came up blank. So I settled on moving forward with the project without that capacity. I decided to scan at 1200 DPI as I knew I wanted to be able to print full page in high resolution. This decision meant longer times for scanning as I had 94 items (17.6 GB!) to account for. I spent over 12 hours during the lab part of the process carting containers of materials from my home alter spaces to my studio on the second floor, and then up to the 5th floor lab for scanning. I took the stairs during each trip and my step count and flights of stairs count were huge over those two days.

Once the materials were scanned I set to work exploring parts of Photoshop I'd not really used before. I had vague recollections of a magic wand tool which would let me select parts of the images based on some sort of edge detection. I knew that the paper we were working on was white, and I

wanted certain object to seem to float on that white page. Many of the scans ended up with black as the background, which was fine for some of the layout I explored. I was interested in creating repeated patterns and shapes by copying, pasting, reversing, inverting, etc. Indesign was finicky about some of that and put the handles for moving things in weird spaces off the area of the page I was working in. The lesson I learned from this is to work on those variations in PS prior to working in ID. Another thing I learned when printing, was that my images sizes were so DPI large that it really slowed down the usability of the application and of the print process. Reducing them significantly to something like 75-240 DPI made things much snappier in terms of performance. Scan large, reduce smaller, then layout and print.

Class: Work and Analysis (Contino)
Zine details:
32 pages
8 & 1/2 by 11 300 DPI

To insert image:
File, Place
Point to image folder

If enlarging do it in Photoshop, not Indesign

To resize Right click, Fit, Fit Proportionally

View, display performance, high quality

File, Package - full resolution archive of everything into single folder

09/04/18
Visiting Artist Videofreak
Alan Riley
2010-2012 EIA MFA grad
Allen-Riley.com

Book: Finite & Infinite Games, FLKR & Slack inspired by the book
Augmenting Human Intellect DC Engelbort

ubu web site is useful resource: Check out Aspen Magazine

To print book to iba:
File Print Booklet
Type two up saddle stitch
Print blank printer spreads checked

Print settings iba
Setup
Orientation horizontal
Page position centered

Page setup
iba
Ledger 11x17

Orientation horizontal

Printer
Print 2 sided
Layout
Short edge binding

Finishing
Stapling
Saddle stitch landscape

Setup/preview pages in order

File
Automate

Window
Actions
Clear all
New action
Name
Record
File open
Click on 1
Image
Image size
Resample checked
Resolution
240
Save as
Select new folder
File
Close
Stop button
File automate
Batch
Source folder
Check all boxes
Destination
Folder

9/18
Watched these four films:

Interval Peter Greenaway
Belly of An Architect

Street of Crocodiles Quay Brothers Bruno Schultz

Decodings Michael Wallin
Ralph Gibson Equivalence Photo Book

Filmmakers Takahiko Iimura

Time based (Deutsch)

Gail is taking the class with us. Her husband Jonathan teaches in ceramics.

Nino, junior.

Stockhausen How Time Passes

Lucifer stopped time

Unified Time Structure
Multi layers

Sirius, electronic, voice, trumpet

Temporal, frequency, layers, & time.

Pierre Schaffer Reduced Listening, don't hear the instruments, don't name it.
Acousmatic music, from Socrates hiding behind a curtain

Pierre Henry, Luc Ferrari Cinema for The Ears, ambiguities of the sound. Not directly narrative.

Keith Rowe AMM

Boulez vs Cage: book by Michael Nyman
Time and tone in music

Andrew calls his work electro dynamic drawing

Paul DeMarinis

Which Fluxus person said "any sound goes with any image"

9/19 :

"The eye may be said to owe its existence to light, which calls forth, as it were, a sense that is akin to itself; the eye, in short, is formed with reference to light, to be fit for the action of light; the light it contains corresponding with the light without."
Johann Wolfgang von Goethe

Index DVD

Phillip Jeffrey's Wall Coverings Owner donated the fabric printer and is coming in October. Andrew asked me to make a print for him.

Chase Anger Unger dance teacher might be up for sound collaboration
Also folk inclined music person
Print and Video for experimentation
After effects or premiere full Rez exports of stills
Screen capture in mac
Hsini-Des Photography adjunct teaching lighting and into social practice

Relational Aesthetics
Post Studio

Song Delay Joan Jonas

X&Y components of audio & video
Audio Amplitude & Frequency
Video Chroma & Luma

Mark's recommendations :
Bergen & keaney swamps
Chimney Bluffs
Zaar valley
The Ledges:
Stay right by Big Dipper, 1/4 ledges in right, curve is start of ledges, cross bridge,
parking lot on left gravel pit, walk back in creek, creek diverges head west

One degree of freedom

Reeves BFK paper Walter Wright
Maple shows less grain
Cherry shows more
Oak shows most
Xuan paper
Intaglio etching engraving below the surface, ink pushed below surface and
pulled out by damp paper- polymer plate, film positive process. Replaces photo
graveure and is less toxic
Woodblock is relief printing
Plainographic is lithography, oil and water doesn't mix, all takes place on same
surface
Stencil or screen printing, earliest type of printing on caves in Spain & France
Digital Prints:
Super high res to obtain highest quality
Lowest res from video 640x480 for statue mouths
Star three ply paper
Cloud Dragon Paper

Turn printer on
For print use tiff, or RAW
For video work in SRGB, compresses highlights and shadows
Best color space for printing Adobe RGB
Photoshop:
-Edit color settings set to Adobe RGB
-document profile, Edit convert to profile needed
-each printer has a profile
-each paper has a profile
ALWAYS US "CONVERT TO PROFILE"
Monitor brightness setting to all but three filled
Interpolate to make image bigger, paper is 24 inches wide, make image 20 inches
wide (2 inches blank on either side)
300 DPI Resample smaller or larger image to chosen resolution, bicubic, nearest
neighbor
When ready to print:
Watercolor Canon 6400, Museum Etching paper
Print settings, put in correct paper size, manage custom sizes, add one, double
click title and name width by height, user define, fine watercolor Canon, 24 x 34,
ok, Layout, color matching ColorSync automatic, save
Color handling printer manages color, perceptual (continuous tone) selected
Hi print, ok, print, ok

Scheer Epson scanning:

Monitor three bars

Check PS for scanner software

Layer, Info, History open

Panel options

Turn scanner on

Open Epson Scan 2

Scan settings: photograph for most things

Scanner glass

Document type: reflective

Resolution: 300 final output, small object to blow up higher rez

Color management: color control, 2.2

Colorsync: Epson standard

Scan quality: high

Target: Adobe RGB

Image format: tiff

48 bit color highest rez

Advanced settings:

Unsharp mask: middle (means sharpening)

Color restoration: off

Backlit correction: off

Descreening: off (deals w/ halftones) can create moire by layering screens

Dust removal: off

Preview:

Use Advance settings, detailed adjustments

Color balance: (good to correct weird colors)

Gray balance intensity: (correct cast)

Tone correction: curves (don't throw any information away) slight s curve to

improve contrast

Histogram: stretch out tones

Resolution: 22x30 print should be around 100MB, scan a bit more than you want

to print, 44"x7-8 feet from a GB file

Crop to just what wanted scanned

Print in 8 bit shows no difference from 16 bit according to Joseph

Black paper behind scanned paper will prevent bleed through in scan

Scheer halftone laser print.

Important photo in Lightroom to transform to best black and white possible. Get most range of tones.

Export TIFF 300 dpi

Open in PS adjust image size to block size

Convert to grayscale, discard color layers.

Image mode bitmap, 300 dpi, halftone screen.

Frequency (lines per inch)

85 lpi with elliptical dots

Laser cuts whatever is black. Turn into negative by inverting with cmd i

Color separation

Resize for black

Separate colors, select color range choose gray, hold shift key down to get other colors, high fuzziness, copy paste

Layer merge visible

Image mode grayscale, don't merge

Flatten image both colors, save to desk top, discard

Use history to see other layers

Image mode 8 bit

Clean up and darken image, curves middle boots a lot, clean again

Make into halftone

85 lines, round or elliptical, 45 degrees (change degree for each layer) invert and

save

Same thing for next layer, change angle

For my block:

Red cut 65 100, second pass 50 100

Black 65 100, second pass 50 100

Stucki is dithered halftone

I just thought

What a genius

I just thought

Vaguely Jesus

Intaglio process

8 bit

Grayscale

Size to plate

Black down to 80%

Cmd m

Curve 80

Cmd ac v

Duplicate same layer

Soft light

Flatten image

Curves back to 80

Add

Canvas , white , move up, 12 "

18 point font name

Flatten

Save new name

I'm a practical creative dancer.

Polymer print

Turn on and warm up

Push & turn to turn on

Run 2-3 exposures to warm up

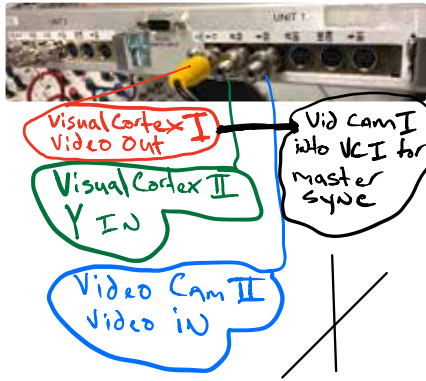
Expose 120 seconds (Vacuum @ .008)

Wash 55 seconds

Dry 660 seconds

Post exposure 3 x 120 seconds

2 cam, 2 VC TBC setup:



Immersive gallery details

speaker setup:
Right = back left l/r
Middle = front l/r
Left = back right l/r

projector:
1280x720

Hanging and finishing prints:

Tips from Joseph

Measure half inch on all sides, put screw in wall, magnet on paper to screw.

Eye level 62 inches, print centered

Sandpaper 120 for removing unwanted marks.

Melanie Bonajo Furniture Bondage

Things to get in Alfred

- passports
- pillow
- green blanket
- heaters
- checkbook
- LZX
- boxes

Plant feet when morvering. Don't walk it. Marver both directions.

Test Patterns (2018) Victoria Keddle

Bosqulet's first band. Playing with tech at his time. "What was the electricity like?
Let's go in there."

Phenomenology: philosophy of consciousness

Hermeneutics: philosophical inquiry into how we make interpretations

VALIE EXPORT
out + ab + an + zu [up + down + on + off]
1968/2004
expanded movie
performance drawing
dimensions variable 150 x 200 cm (60 x 79 in) or 190 x 270 cm (75 x 107 in)
duration variable (8-00 minutes for this reenactment)

This piece originally included film and its projection onto a sheet of paper where viewers were invited to draw on the surface of the paper while the film played. In my research I was unable to find any video references to view how it may have looked, nor any photos or descriptions of how it was installed or precise information on how participants interacted with it while drawing. Instead I have two stills from the film, and two completed drawings for reference to inform my reenactment. In preparation for the reenactment I utilized photographic source images of stills from EXPORT's black and white film stitching them together frame-by-frame to create an eight-minute video which may be similar in look and feel to EXPORT's film. This video will be projected in the Sound Studio using a video projector and, in the reenactment, I will play the role of participant/viewer by drawing on the paper during the projection.

EXPORT describes the film:

"The viewer, whose participation in the production of the film is essential, uses the writing implement to add to what is covered on the celluloid. In the end, what you see in the white projected square are the lines and symbols of the reproduced reproduction." (1)

"Thus the drawing, created during the projection of the film and originating through the action of the participant, becomes the actual film." (2)

Speaking of the drawing EXPORT states that it is:

"the culmination so to speak ... The areas on the celluloid that are painted over are, in a way, supplemented with a drawing; in other words, anyone who dares to go up to the canvas and draw will end up with a completely individual, unique film." (3)

1. 1. VALIE EXPORT, in Split-Reality: VALIE EXPORT, exhibition catalog

Museum Moderner Kunst Stiftung Ludwig, Vienna, April 25 - June 15, 1997 (Vienna, New York: Springer, 1997), 64.

2. 2. Brigitte Reutner, in VALIE EXPORT - Drawings, in VALIE EXPORT Time and Countertime, Walter König, Köln: Bilingua edition (April 30, 2011), 216.

3. 3. Sylvia Szalay, EXPORT LEXIKON, Chronologie der bewegten Bilder bei VALIE EXPORT. (Vienna: Sonderzahl Verlag, 2007), 202.

Mikela
Blast 150 \$54.99
Performance 60 \$44.99
\$39.99
ECO Auto \$5
xfinity my account

Sand molds for glass
4% benzonite to sand
Water conservatively as needed to dampen

Salt 16 x 13
Mirror bubble 13 x 7
Blue glass 6 x 6
I got really carried away and engaged in this process and created multiple screens out of glass. Some of them were unmitigated disasters but I kept pressing on. I plan on showing my findings with demonstrations of up to three screens if time allows. Here they are in my order of preference (meaning if I can only share one, it'll be the first one):

Wound Maker (Be Wary of False Gauze!)
sheet glass, one pound of salt, glue, & binder clips
16 inches by 13 inches
Projection (either front or rear)

This one was so mean to me! I worked on this idea for a week. Originally starting with olive oil-soaked paper (which turns the paper translucent) and burnishing salt into the surface of the paper. I couldn't get enough of the salt to adhere and stay on the paper though. I then hit on the idea of wedging a layer of salt between to panes of glass. This proved tricky in other ways, not least of which is the fragility of the panes I have access to. I broke six pieces total trying to do this (and managed to cut my fingers, which made things more challenging), including the final one I'm presenting. It cracked at the last minute in an unexpected way, when the salt expanded after gluing the two panels together. The pressure and movement of the salt while the glue dried induced the long horizontal crack on one side. Either side can be projected on but I will demonstrate it in a rear projection capacity, projecting on the cracked side to create the image on the other side. As it is structurally damaged, heavy, and potentially dangerous, I will hand hold this screen during the demonstration.

Phase Space
Blown glass, with hand-mirrored surfacing
Dimensions variable, approximately 13 inches by 7 inches
Rear projection

I love how this looks and behaves and creating it has fed many new ideas for creating an installation. In creating and titling the work, I considered Manuel

Delanda's ideas of molecular interactions generating at singular points in space which can expand, via energetic possibilities, into specific forms. This is further expanded in the way that the image fills the form from within and then bends it around the exterior surface really excites me.

Blue Ear for White Cubes
Cast glass
6 inches by 6 inches
Rear Projection

The angle of the cast glass form, and the concave circle meet to create a nearly holographic dimensionality when viewed from certain angles from the front side.

Solid Works in McMahon lab
Rhino
Google sketch up
Fusion 360
David Greene
greene@alfred.edu

Issues w/ Marble Index:
Using RGB signal chain input from camera to Visual Cortex through to Marble Index:
-Opacity CH. A main knob, & Opacity VC knob both have intermittent shorts (firmly pressing knobs in/down triggers shorting behavior)
-Individually CH. A, CH. B, & Background do not fully black out with RGB color knobs fully counter clockwise & associated Mix switches engaged in upper position.

Soiled glass screen dimensions

Wood base:
19x6

Glass:
16x12x1

Alfred credits needed for last year:

Work & Analysis Joseph Scheer

Joe out September 10th
September 17th we present

Presentation on two examples on how an artist uses text with images, web, book,
article, interview, installation, interactive media, etc.

Critique ideas and present to each other.

Consequences of reflection from a planar surface

- The image & object are equidistant from mirror
- image is either upright, not inverted
- image is virtual, not a real image
- virtual means that light rays do not actually intersect at the location of the image
- the image can't be projected
- image is neither magnified nor diminished

Refraction through planar surfaces

- $n_1 \sin \theta_1 = n_2 \sin \theta_2$ (smaller) (larger) (smaller) (larger)
- high index of refraction
- low index of refraction
- keep rays close to the axis (paraxial): rays close to optical axis, make small angles w/ it
- object distance - s
- image distance - s' (prime)

$$\sin \theta \approx \theta \approx \tan \theta \approx \theta \approx \theta$$

$$n_1 \tan \theta_1 \approx n_2 \tan \theta_2$$

$$n_1 \frac{y}{s} = n_2 \frac{y}{s'} \rightarrow s' = \frac{n_2}{n_1} s$$

- total internal reflection, part of Snell's law
- higher index = slower movement of light, lower index = faster movement

CURVED SURFACES

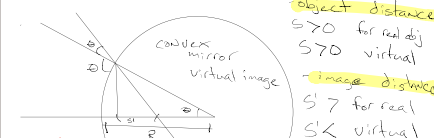
- telescopes / curved mirrors / chromatic aberration occurs in lenses
- curve shapes - ellipsoids (inside)
- hyperboloid
- paraboloid
- characteristically expensive
- spherical mirrors most common double offset

Reflection at cartesian surfaces

- cartesian, avoid spherical surfaces
- 1st order / Gaussian optics
- $\sin \phi = \phi \frac{ds}{s} + \frac{\phi s}{s'}$
- $\cos \phi = 1$ → getting smaller

Lecture 09/04/19

Sign convention s, s', R



object distance $s > 0$ for real obj

$s > 0$ virtual

image distance $s' > 0$ for real

$s' < 0$ virtual

Radius of curvature $R > 0$ if C is to right (convex)

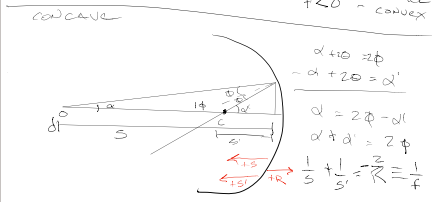
$R < 0$ if C is to left (concave)

Focal length $f > 0$ - concave

$f < 0$ - convex

$$\frac{1}{s} + \frac{1}{s'} = -\frac{2}{R} = -\frac{1}{f}$$

$$\frac{1}{s} + \frac{1}{s'} = \frac{1}{f}$$



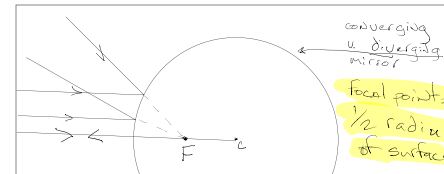
$\alpha + \theta = 2\phi$

$\alpha + 2\phi = \alpha'$

$\alpha = 2\phi - \alpha'$

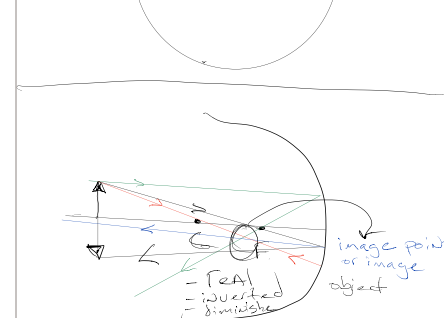
$\alpha + \alpha' = 2\phi$

$$\frac{1}{s} + \frac{1}{s'} = \frac{2}{R} = \frac{1}{f}$$



converging mirror

focal point - $1/2$ radius of surface



$$\left(\frac{1}{78} + \frac{1}{23.5} \right)^{-1} = 18 \text{ cm}$$

+78

+23.5

+19.5

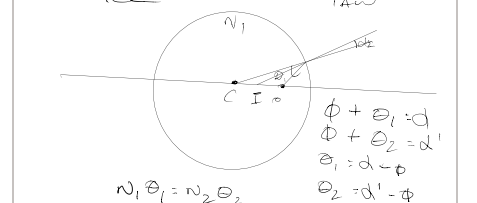
$$\left| \frac{h_o}{s} \right| = \left| \frac{h_i}{s'} \right|$$

$$h_i = -\frac{s'}{s} h_o$$

lateral magnification $m = \frac{h_i}{h_o} = -\frac{s'}{s}$

- Snow White & 7 Dwarves

Refraction through spherical Surface



$$n_1 \theta_1 = n_2 \theta_2$$

$$\phi + \theta_1 = \alpha$$

$$\phi + \theta_2 = \alpha'$$

$$\theta_1 = \alpha - \phi$$

$$\theta_2 = \alpha' - \phi$$

$R \rightarrow \infty$

Radius going to infinity eventually behaves like flat surface i.e. planar

9/9/19 Spherical mirrors: $\frac{1}{s} + \frac{1}{s'} = \frac{1}{f} = \frac{2}{R}$
 Spherical refraction: $\frac{n_1}{s} + \frac{n_2}{s'} = \frac{n_2 - n_1}{R}$

Thin lens: Lens = different material than what it's sitting in. Double refraction from n_1 into n_2 & back into n_1 .

Thickness of lens - $T \ll s, s'$

Let $T \rightarrow 0 \Rightarrow s_2 = -s_1'$

First surface: $\frac{n_1}{s_1} + \frac{n_2}{s_1'} = \frac{n_2 - n_1}{R_1}$

Second surface: $\frac{n_2}{s_2} + \frac{n_1}{s_2'} = \frac{n_1 - n_2}{R_2}$

Thin Lenses: $\frac{1}{s} + \frac{1}{s'} = \frac{1}{f}$
 $m = \frac{s'}{s}$

FZO - converging
 FKO - diverging

combination of thin lenses in series (in contact)

$\frac{1}{s_1} + \frac{1}{s_1'} = \frac{1}{f_1}$ $\frac{1}{s_2} + \frac{1}{s_2'} = \frac{1}{f_2}$

$s_2 = -s_1'$

Generally: $\frac{1}{s} + \frac{1}{s'} = \frac{1}{f}$ (all lenses in contact)

cap model using resistor/capacitor in series

2-9 $\frac{1}{100 \text{ cm}} + \frac{1}{10 \text{ cm}} = \frac{1}{f}$ $f = 9.09 \text{ cm}$

2-14 $\frac{1}{15 \text{ cm}} + \frac{1}{s_2} = \frac{1}{f}$ $s_2 = -15 \text{ cm}$

clear (less magnification) effect

$s = 7.5 \text{ cm}$
 $R = 15 \text{ cm}$
 $n_1 = 4$ $n_2 = 1$
 $s' = 6.4 \text{ cm}$
 $m = -\frac{s'}{s} = -\frac{6.4}{7.5} = -0.85$

9/11/19 optical instrumentation. camera, optic fields, stop extra aperture, prisms, computational photography.

aperture: round opening, centered on axis, useful for letting a certain cone of rays through.

- limits extent of the rays that can be processed by system
- done physically by blocking rays outside the edge of the aperture
- pinhole telescopes, camera
- big opening = more light
- small opening = less light
- closing down aperture knocks out least paraxial rays

opening allows brighter images

- lens can be Aperture if object is close to lens
- Entrance pupil of a system = limiting aperture on way in
- Exit pupil: what system looks like from inside system
- Exit pupil should be sized for human pupil where it will view from

Field stops: control the field of view by limiting the solid angle from the object that makes it into the system

- how large or how far the object can be
- also done w/ a ring physically
- vignetting: dropping off intensity on edge of field of view. good systems do this crisply.
- blurring is called aberrations
- 6 types: Two categories

Chromatic aberration (color fringing)
 Monochromatic aberration (shape of light)

index of refraction $n(s) \rightarrow f(s) \Rightarrow$ use mirrors to overcome

Spherical aberration: lens paraxial rays focus to different points because sine

best ray in bundle of rays, lots of light are coming through all different parts of the lens, most affected further away from axis

- Coma: makes things fuzzy, depends on $\theta, \cos \theta$
- Astigmatism: points become lines (of lens)
- Curvature of field: $h^2, r^2 \cos \theta$
- Distortion: $h^3, r^3 \cos \theta$

chromatic aberration: useful purposes (Prisms): defraction gratings

7/16/19 Prisms: Dispersion (spread in deviation)

wavelength changes through material. Frequency does not.

dispersion $\frac{dn}{d\lambda}$

$n(\lambda) = A + \frac{B}{\lambda^2} + \frac{C}{\lambda^4} + \dots = A + \frac{B}{\lambda^2}$

$D = -\frac{2B}{\lambda^3}$

Fraunhofer Lines:

Line	$\lambda(\text{nm})$	$n_{\text{air}}(\text{vac})$	n_{flint}
F (blue)	486.1	1.5286	1.7328
D (blue)	589.2	1.5230	1.7205
C (red)	656.3	1.5205	1.7076

Dispersive power: $\Delta = \frac{n_F - n_C}{n_D - 1}$

Rayleigh's criterion: $\Delta \alpha = \frac{1}{2}$

Porro prism

- inverts 1 dimension, not both
- inverts two flips
- inverts inversions
- absorption can be mitigated

pinhole camera: tiny hole, every point is taken to one point on film

Here camera: smaller hole, more light spreads out on other side

- addition: converging lens, which gathers more light
- choice s' w/ choice of sharpness, but now must
- intensity of film/sensor $\propto \frac{1}{s'^2}$
- depth of field depends on focal length, aperture
- relative aperture: $A = \frac{f}{D}$

F-Stop (speed of film)

- less of them focal length
- aperture = $\frac{1}{f\text{-stop}}$
- $A = \frac{f}{D} = 8$ called f/8 aperture

DOF = $\frac{2Ad}{f^2} \frac{s_0^2}{s_0^2 - f^2}$

total exposure on film is $\frac{1}{s'^2} \propto \frac{1}{f^2} \propto \frac{1}{A^2}$

if $\frac{1}{s_0}$ works for f/8 aperture, if you want to use f/4 aperture (bigger & more light) need to shorten exp. time $\frac{1}{4}$ times the aperture size = quadrupled energy

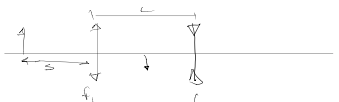
The Depth of Field

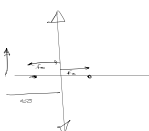
Depth of field given by near point to far point $s_2 - s_0$


DOF is $\frac{2Ad}{f^2} \frac{s_0^2}{s_0^2 - f^2}$


d = diameter of the circle of confusion = acceptable diameter of the size of the blurring.

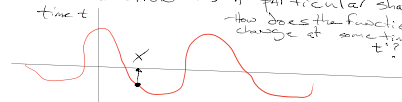
9/13/19 Simple magnifier / Magnifying Glass:

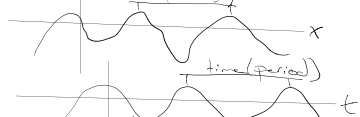
$\tan \alpha_0 = \frac{h}{25\text{cm}}$
 $\tan \alpha_m = \frac{h'}{s'} = \frac{h}{s}$
 Angular magnification $M = \frac{\alpha_m}{\alpha_0} = \frac{h/s}{h/25\text{cm}} = \frac{25\text{cm}}{s}$
 If you want image pushed to infinity:
 $\frac{1}{s} + \frac{1}{s'} = \frac{1}{f} \rightarrow s' = \infty$
 $M = \frac{25\text{cm}}{f}$
 For comfortable viewing: $s = 25\text{cm} \rightarrow s' = \frac{25\text{cm}}{M}$
 $s = \frac{25\text{cm}}{M}$
 Fixing chromatic aberration, 2 lenses
 Dual focal point

 $\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2} = \frac{L}{f_1 f_2}$ marks for final images @ $s' = -\infty$
 measuring s, s', f relative to 1st lens
 using lens maker equation: $\frac{1}{f} = (n-1)(\frac{1}{R_1} - \frac{1}{R_2})$
 chromatic aberration fixed by choosing length between lenses


focal length of lens index of refraction
 = less chromatic aberration
TAYLOR SERIES CONFUSION
 Lenses put $\frac{1}{2}$ way apart from their focal length average
 Descriptive appearance like magnification

 $L = f_0 - f_e \approx 16\text{cm}$ in many microscopes
 Numerical Aperture N.A. - invariant of optical system
 Depth of focus decreases w/ greater Numerical Aperture
 Telescopes: Refractors & Reflectors
 Refractors:
 - catadioptric
 - both lenses & mirrors
 - Keplerian (astronomical)
 - 2 positive (converging) lenses
 - virtual image flipped inverted

Galileo (negative ocular) upright
 - eyepiece diverging? converging lenses

 Angular Mag $M = \frac{\alpha'}{\alpha} = -\frac{f_0}{f_e}$
 Length $L = f_0 + f_e$
 objects are distant so numbers drop off to 0
 math is simpler
Buses are two telescopes
 Newtonian geometries for directing light in the eye
 Gregorian
 9/23/19: Telescope geometries
 Fite: refraction take @ n=1.5, good for multiple slabs
 Reflectors: some large ones have edges where you can sit w/ it
 Newtonian (side view)
 Gregorian (side view)
 Cassegrain geometry

schmidt/cassegrain is common refracting/reflecting

 no spheres above/below
 Double hyperbolic cassegrain \rightarrow Ritchey-Chretien (also 2nd order aberration)
 $L = f_0 + f_e$
 $M = -\frac{f_0}{f_e}$
WAVES what is a wave?
 - disturbance of stuffs
 what kind of waves are there?
 - specific mediums
 - **TRANSVERSE** (can be made in liquid)
 - **LONGITUDINAL** (sound waves, compression in air)
 Travelling waves:
 - consider function of the form:
 $y = f(x - vt)$ - any periodic function
 $\sin(x - vt)$
 $\exp(x - vt)$
 $(x + vt)$

Travelling waves:
 At a particular instance in time the function has a particular shape
 how does the function change at some time t ?

 - There is some point x' that will definitely have the same function value @ time t' as the value $f(x - vt)$ @ time t
 - if $(x - vt) = (x' - vt')$, then $f(x - vt) = f(x' - vt')$
 $x' = x - vt + vt' = x + v\Delta t$
 - all travelling waves must have this form $y = f(x - vt)$
 differentiate w.r.t. x & twice
 $\frac{\partial y}{\partial x} = f'(x - vt)$
 $\frac{\partial^2 y}{\partial x^2} = f''(x - vt)$
WAVE EQUATION
 $\frac{\partial^2 y}{\partial x^2} = \frac{1}{v^2} \frac{\partial^2 y}{\partial t^2}$

sin function: $\sin(\theta + 2\pi) = \sin(\theta)$
 angle has radians or no units
 phase shift
 full 2π is all around a circle
 then is dimensionless (no units)
 wavelength: period of wave

 temporal/spatial (k)
 angular frequency of oscillations
if waves travelling by per/wave of time is the frequency
 $\frac{1}{T} = \text{how many units go by per unit of time}$
 for all waves: $v = f\lambda$
 Exponential function (most useful/easier than sin/cos)
 Phasors (rotating vectors AC circuits)
 sin/cos - generated by rotation
 - complex numbers


 imaginary part
 $\tilde{z} = a + ib$
 $\text{Re}(\tilde{z}) = a$
 $\text{Im}(\tilde{z}) = b$
 $k = \sqrt{a^2 + b^2}$
 Euler's formula: $e^{i\theta} = \cos \theta + i \sin \theta$
 Taylor expansions
 magnitude
 9/25/19 General waves: $y = f(x - vt) \cdot s(k(x - vt))$
 $\omega = \frac{2\pi}{T}$
 $k = \frac{2\pi}{\lambda}$
 $\omega = \frac{2\pi}{T}$
 $k = \frac{2\pi}{\lambda}$
 $\omega = \frac{2\pi}{T}$
 $k = \frac{2\pi}{\lambda}$
 $\omega = \frac{2\pi}{T}$
 $k = \frac{2\pi}{\lambda}$

complex variables: $\tilde{z} = a + ib = |\tilde{z}|e^{i\theta} = |\tilde{z}|(\cos \theta + i \sin \theta)$
-REAL/IMAGINARY OSCILLATIONS
 $\tilde{z}^* = a - ib = |\tilde{z}|e^{-i\theta}$
 $\tilde{z}\tilde{z}^* = (a + ib)(a - ib) = a^2 + b^2$
 $= |\tilde{z}|e^{i\theta} |\tilde{z}|e^{-i\theta} = |\tilde{z}|^2 e^{i\theta} e^{-i\theta} = |\tilde{z}|^2$
 If $A \sin(kx - \omega t)$ sine wave
 is $B \cos(kx - \omega t)$ cosine
 are waves, then
 $C e^{i(kx - \omega t)}$ is too.
 waves are made of sines & cosines
 - linear diff equation
 - superposition
 - Hyperbolic functions don't oscillate
 - phase relationships in waves
 If there were an oscillation that looked like $e^{i(kx - \omega t)}$ but was a little bit dead in its oscillation we can represent it as $D e^{i(kx - \omega t + \phi)}$
 ϕ works in both time & space
 \sin = vertical piece
 \cos = horizontal piece
 travelling in time & space

If we can write a wave travelling along +x direction $\vec{E} = A e^{i(kx - \omega t)}$
 how could we rep a wave travelling along -x direction $B e^{i(kx + \omega t)}$
 -z direction $C e^{i(kz + \omega t)}$
 along vector \vec{k} pointing $k_x \hat{x} + k_y \hat{y} + k_z \hat{z}$
 $B e^{i(\vec{k} \cdot \vec{r} - \omega t)}$
 spherical vs. cylindrical vs. cartesian coordinates

$$= B e^{i(k_x x + k_y y + k_z z - \omega t)} \quad \text{4 dimensions}$$

same for all observers:
 $(\Delta x)^2 + (\Delta y)^2 + (\Delta z)^2 - (\Delta t)^2$
 is invariant interval

09/30/11 EM WAVES:

appear decoupled but according to Faraday's law if change happens in magnetic field then electric field changes happens in electric field (vice versa)
 $\vec{E} = c \vec{B} \rightarrow \vec{E}_0 = c \vec{B}_0$
 $\vec{E} \perp \vec{B}$
 $\vec{E}(\vec{r}, t) = \vec{E}_0 e^{i(\vec{k} \cdot \vec{r} - \omega t)}$
 $\vec{B}(\vec{r}, t) = \vec{B}_0 e^{i(\vec{k} \cdot \vec{r} - \omega t)}$

(waves in free space) $\vec{S} = \frac{1}{\mu_0} \vec{E} \times \vec{B}$
 Poynting Vector (pts)
 polarization of EM wave follows direction of wave \vec{E}
 magnitude of poynting vector is = to the intensity (ie power/area = energy/area time)
 $S = \langle \vec{S} \rangle = \frac{1}{2} c \epsilon_0 E_0^2$
 energy density (energy/volume) \times length/time

$U_E = \frac{1}{2} \epsilon_0 E^2$
 $U_B = \frac{1}{2} \mu_0 B^2 = \frac{1}{2} \frac{1}{\epsilon_0} \frac{E^2}{c^2}$
 $U = U_E + U_B = \epsilon_0 E^2 = \frac{1}{\mu_0} B^2$
 if waves are sin/cos
 time avg of energy density in wave
 $\langle U \rangle = \frac{1}{2} \epsilon_0 E_0^2$
 Brightness experience = intensity not amplitude
 3 Geometries of waves:
 1) Plane waves: $\vec{E} = A e^{i(\vec{k} \cdot \vec{r} - \omega t)}$ - always
 $\nabla^2 \vec{E} = \frac{\partial^2 \vec{E}}{\partial x^2} + \frac{\partial^2 \vec{E}}{\partial y^2} + \frac{\partial^2 \vec{E}}{\partial z^2} = -\frac{1}{v^2} \frac{\partial^2 \vec{E}}{\partial t^2}$

2) Spherical Waves (point sources): $\vec{E} = \frac{A}{r} e^{i(kr - \omega t)}$
 3) cylindrical waves (line sources): $\vec{E} = \frac{A}{\sqrt{r}} e^{i(kr - \omega t)}$
 the waves add together when they are in the same place at the same time: **SUPERPOSITION**
 Two sources: $E_1 = E_0 e^{i(k_1 x - \omega t + \phi_1)}$
 Two speakers same side: $E_2 = E_0 e^{i(k_2 x - \omega t + \phi_2)}$
 same ω , same ϕ
 $E = E_1 + E_2 = E_0 e^{i(k_1 x - \omega t)} + E_0 e^{i(k_2 x - \omega t)}$
 $E = E_0 e^{i(k_1 x - \omega t)} [1 + e^{i(k_2 x - k_1 x)}]$
 $E = E_0 e^{i(k_1 x - \omega t)} [1 + e^{i(\Delta k x)}]$
 $E = E_0 e^{i(k_1 x - \omega t)} [2 \cos(\frac{\Delta k x}{2}) e^{i(\frac{\Delta k x}{2})}]$
 $E = 2 E_0 \cos(\frac{\Delta k x}{2}) e^{i(k_1 x - \omega t + \frac{\Delta k x}{2})}$
 Law of cosines: $E^2 = E_1^2 + E_2^2 + 2 E_1 E_2 \cos(\Delta \phi)$

Three blue one brown videos
 10/2/19 SUPERPOSITION: Two sources oscillation in time
 In phase, amplitudes add because vectors are aligned
 Intensity is proportional to wave²
 Random phases \rightarrow amplitude $\sim \sqrt{N}$ as big as sum of
 Standing waves
 wave travelling to the left reflects off surface $x=0$
 phase shift from reflection off surface
 reflected wave: $E_R = E_0 e^{i(kx + \omega t + \phi)}$
 incident wave: $E_I = E_0 e^{i(kx - \omega t)}$
 total wave: $E = E_I + E_R = E_0 e^{i(kx - \omega t)} [1 + e^{i(2kx + \phi)}]$
 $E = 2 E_0 \cos(kx + \frac{\phi}{2}) e^{i(kx - \omega t + \frac{\phi}{2})}$
 nodes: $kx + \frac{\phi}{2} = (n + \frac{1}{2})\pi$
 antinodes: $kx + \frac{\phi}{2} = n\pi$

$E = E_0 e^{i(kx - \omega t)}$
 $E = E_0 e^{i(kx - \omega t)}$
 $E = E_0 e^{i(kx - \omega t)}$
 if $\phi = \pi$:
 $E = E_0 e^{i(kx - \omega t)}$
 $E = E_0 e^{i(kx - \omega t)}$
 ZERO AMPLITUDE
 when $kx = m\pi \rightarrow x = \frac{m\pi}{k} \rightarrow$ ZERO AMPLITUDE
 1st harmonic is full wave
 nodes $\frac{\lambda}{2}$ wavelength apart
 wave/ANTENNA is the structure of STANDING WAVES
 instrument: up fixed open space
 Guitar
 rise length
 Beats:
 $E_1 = E_0 e^{i(k_1 x - \omega_1 t)}$
 $E_2 = E_0 e^{i(k_2 x - \omega_2 t)}$
 440 432 - 436 Avg.
 8 Difference
 4 group freq
 Hear 8 beats every second

vol wave phase velocity & group velocity
 Animation
 10/23/19
 medium
 film
 substrate
 $\delta = \delta_{PE} + \delta_{PF} - \delta_{IF}$
 $\delta_{PE} = \frac{2\pi}{\lambda} \delta$
 $\delta_{PF} = \frac{2\pi}{\lambda} \delta$
 $\delta_{IF} = \frac{2\pi}{\lambda} \delta$
 what can be done if a film
 1. ke this?
 2. if you want to keep your substrate from reflecting blue light (450nm) if the film is light of index 1.5, what thickness can you use?
 light has to go somewhere.
 can't block on both sides if using reflection
 Ellipsometry
 diagram showing light reflecting off a surface at an angle, with incident and reflected rays labeled.

10/28/19 Interferometry
 Michelson Interferometer
 Recall that for interfering beams, the intensity I of one beam
 $I = I_1 + I_2 + 2 \sqrt{I_1 I_2} \cos \delta$
 $\delta = \delta_{PE} + \delta_{PF}$
 $\delta = \frac{2\pi}{\lambda} \Delta r$
 $\Delta r = \Delta r_{actual} + \Delta r_{inversion}$
 wavefront division - double slit
 amplitude division - thin film
 Michelson Interferometer - finding the other actually not (slit) coherent (flashed on screen)
 near saw any effect of other
 - measure to these spectral lines
 - candle, index of refraction
 - measure gas dispersion
 how beam splitters work - every bounce inverts
 diagram showing a Michelson interferometer setup with a beam splitter, mirrors, and a detector.

$l = A + 2B + C$
 $l_2 = A + 2B_2 + C$
 $\Delta l = l_2 - l = 2(B_2 - B)$
 let $B_2 - B = D \rightarrow \Delta l = 2D$
 For incident angle θ to optical axis:
 $\Delta l = 2D \sqrt{1 + \sin^2 \theta} \rightarrow \Delta l = 2D \cos \theta$
 path length - phase shift
 $\delta_{PE} = \frac{2\pi}{\lambda} 2D \cos \theta$
 cone of light at optical axis creates concentric circles
 Destructive Interference requires
 $\delta = (2m+1)\pi$ (dark ring in pattern)
 $(\frac{2\pi}{\lambda} 2D \cos \theta) = (2m+1)\pi$
 overall phase shift?
 $\frac{2\pi}{\lambda} 2D \cos \theta = 2m\pi \rightarrow 2D \cos \theta = m\lambda$
 Edge is first fringe, moving in order is ward
 max value of m (pattern) $m_{max} = 1$
 fringes move in and disappear in the center.
 - measure index of ref. of a gas (beam through, reflect)

Biologically most important: SPECIES
Every other division is a scheme for easier classifications for us

Tabled:
- Geographically
- Reproductively (behaviorally)
- Physiologically

subgroups in species are sometimes recognized as subspecies

group of natural pop w/ local adaptations that are geographically isolated from other groups having unique taxonomic characteristics often local adaptations

fox sparrows: 5 - rumped/shaped

Geographic (or clinal) variation
Form of species that exhibit gradual taxonomic differences over a geographical area, due to environmental heterogeneity

- Cliff swallows
- Horned Larks

Bergmann's Rule:
species forms at larger size are found in colder environments (generally higher altitudes or more polar latitudes)

larger makes volume increase faster for surface area. More volume w/ less surface area - lose heat less quickly

wt. fraction of volume (cubed) vs. surface area (squared)

Bird Topography: Feathers

CLAY - COLORED SPARROW HEAD

10/17/19 Foraging & Feeding

the classic approach

foraging guilds: group sharing feeding preferences regardless of taxonomy. Better classification system than beaks alone.

- insectivores: long bill, takes (invertebrates) (holoprey)
- granivores: short bill, cerebellar body, precise feet
- omnivores: long bill, longish tongue, rack head to crack seeds

- salivary insectivores - kingbird
- aerial insectivores - swallows (hard to catch flying insects from surface, but can catch them in flight)

- bark gleaner - nuthatch (forages top to bottom in trees)

Foraging models are designed to help understand foraging decisions

Egs.: Central place foraging theory
- patch selection theory
- fat/liver storage

10/22/19 Foraging & Feeding

Foraging Strategies: different models explaining decisions

com. Edge of foraging choices in winter
blue muscles - 1/3 of energy is used for foraging
- energetically more favorable than fat storage
- higher carbohydrate diet

small 4-5 groups - noticed separated from large flocks
- not as healthy as larger group members
- unhealthy needed embs

Eat all day but energy vs. gamble on higher energy reward

3-6 weeks below surface
- free up space for larvae of muscivores to attack

Marginal value theorem (MVT)
- foraging energetically costly
- evolution favors adapting for gain/loss
- economic strategy to balance
- decreasing resource

MVT is an optimality model, there's

a point at which it's not worth it anymore.

Evidence: giving up density (GUD)

- seed/sand mixed in known volume in bowl. Time goes on & finding seeds declines. Eventually G.U.

- Indicator of Habitat Quality
lower GUD = higher Habitat Quality

Food Caching: hoarding for future
- not common in birds, shrikes do it
- Accords with evidence to it. 15-20 individuals in a group sharing an entire prey item, can have 10-20 take 1 bird 24 hrs to drill hole. winter? feed at seed accords. Drilling doesn't hurt trees. Holes bark. - additives stuffed in. pinholes in leaves, flowers, other things
- not focused on insect inside acorns

Stringiformes: OWLS
- tube shaped eyeballs
- scleral bones larger retina & brain connected
- can't move eyes but head can to 270°

caprimulgiformes: nightjars (night hawks)
- B. Jay - 30% (less than small apple)
- Chickadee - 1/2 oz (< 2 quarters)

10/24/19 Flight

Evolution
Hypothesis:
- **Aerobial model**: From gliders to flyers
- **cursorial**: running, hopping, wing beating
- **foraging foraging**: ambush predators, ambush hunting from elevated places

- As like these can be explored in embryonic stages studies

- **injected running**: wings help run up steep inclines. (unassisted incline running)

Forces acting on a flying bird

1. weight: of bird
2. Lift: overcomes weight to keep bird aloft
3. Drag: resistance due to friction between air & bird
4. Thrust: overcomes drag, maintains forward movement

wings

GE. Jay - 5 lbs (from office paper)
B. Jay - 30% (less than small apple)
Chickadee - 1/2 oz (< 2 quarters)

Ruby T. Hum - 34% (< 1/2 inch)

minimize weight.

Lift: Wing is an airfoil
- creates neg pressure above
- pos pressure below

MAXIMIZE lift

Drag - influenced by body shape's surface, streamlined form reduces drag

minimize drag

Feather contour: feathers even out irregularities & smooth things out & reduce drag (aka insulation)

Thrust: Generated w/ wing downstroke (power stroke)
- upstroke (recovery stroke)
(Exception is a bird flying)

downstroke adjust wing, articulate wing to maximize drag
upstroke

USE DRAG TO SLOW & LAND
angle wings, body, tail
stalling, killed lift too many vortices

FALL/CRASH

increase drag w/ killing lift. (if finally sink/crash)

primary feathers & plus Alula (thumb)
- also, sleep, wings of attack, stall
- acts as second winglet delays creation of vortices prevent stalling
- like front of leading edge of plane

Alt. types of flight

- 1) Formation Flying: geese, cranes, pelicans
- take advantage of wingtip vortices
- slot into free lift w/ component wing to vortices
- 2) Soaring: using thermal lift
- air rises w/ warming of earth from sun
- convection w/ clouds
- involve sky w/ clouds
- 3) Hovering: using air over mouthparts

- sinking air over water
 - raptors have more intense sinking air
 - gliding period can be 30-40 miles between thermal lifts
 - Thermal lifts can have 1/2 mile radius
 - soaring - detection lift
 - wind hits ridge & waves up (hills, cliffs)
 - detection lift on edges
 - detection lift on edges
 - accented has consistent wind
 - patterns will follow wave (surf wind) lift

soaring - dynamic (only seen on ocean)
 - turn to wind gaining height, slide back down to gain speed (Alt. 60ft, speed 40 mph)
 - no wing beats
 - figure 8 patterns over ocean, 100 miles/hour
 - air collides w/ waves to slow down in air
 - fast air 10 meters above, nearly slowed at surface
 - down shot 75 mph
 - gravity provides forward motion
 - angled lift forward

hovering: hummingbird kingfishers, harriers, osprey
 - down stroke is power stroke
 - upstroke creates thrust
 - no lift but overcoming gravity
 - hummingbirds create & uses turbulence vortices
 - high pressure generated under wings
 - wind assisted hovering (eagles, osprey) (backward)
 - many birds (eagles, osprey) (backward)

kiting: soaring but at speed (relative to ground)

Aspect Ratio (Wing morphology)
 width to breadth wings length to breadth
 narrow to wide
 Albatross high aspect ratio - slender
 Eagle lower, stiffer wings - weight carrier
 each shot acts like a mini high speed rate wing

wing loading - bird's mass
 - low wing loading needed for agility & quick take off
 - high wing loading is best for foraging under water or for birds that avoid water & larger wings

Floating vs. Gravity
 Altimetry - size of body components to size of body

Hawks - M/F = 100:1 pts.

10/29/19 Migration
 - season, back & forth
 - persistent seasonal movement
 - high to low elevation in
 - bird science abundance
 - 40% migrate
 - 10% 200 out of 500 breeders
 - proportion of migrants increase w/ latitude

Apodiformes:
 - hummingbirds (swifts)
 - not clear if related
 - used thrush
 - Gray catbirds
 - Cedar waxwings
 - Blue winged warblers
 - Yellow Warblers

3 broad cuts, short distance, Neo-Tropical
 - Short - distance - 100-1500 miles (song sparrows)
 - Neo-tropical - S. central am. S. Am (warblers)
 - Long - distance - S. Argentina (swallows, thrushes)
 - more land in N. hemisphere than S.
 - Arctic terns 50k per year in flight
 - Arctic → Antarctic migrations
 - longest non-stop flight: Bar-tailed Godwit
 - only migrate/breed elsewhere
 - NZ/AUS, spring in Asia
 - better condition for breeding season

Predation Avoidance
 - tactics compared to tactics for predator's density

Food Resource
 - Evolution in action (glacial retreat response)

- migration routes: may use traditional routes
 - back/base first loaded
 - Pacific, central, Mississippi, Atlantic
 - offshore Atlantic Flyway

Migratory Funnel - obstacles which direct then
 - Fall outs: weather, or geography points @ right light
 - 28 MAY 2018 IAN DAVIES

11/31/19 Migration cont:
 - supported sites: refueling spots, rest areas

supported in the arid west long out in Iberian, or tidal bay in intertidal zones.

Connectivity: Gene flow, Global connections revealed

Alternative/Variations of Migration:
 - Differential (diff. times, usually split by sex)
 - group - breeding (imm. resident)
 - fall - resource (imm. resident)
 - fall - resource (imm. resident) can also split by age

Loop: different paths in diff. directions
 - Leapfrog: jump over another pop. (subspecies)
 - Altitudinal: go down hill in winter
 - Am. Dipper

Migration:
 - Dispersal: young don't return & establish new breeding area
 - Irruption: subgroups move to feeding grounds
 - Vagrancy: make a mistake migrating

Migration Physiology: massive energy demand
 - need RIGHT habitat to bulk up
 - can't absorb internal organs, build fat
 - Re-organize body, Fred Grabe

1/15/19 communication, navigation:
 - 8,8,8, patch size 38" - yellow warbler
 - French warbler

vocal com. Birds don't have vocal cords
 birds have syrinx

- throat & mouth filter out harsh noises & parasitic sounds
 - ability to modulate if bird is decreased
 - (beak gets as lfo)
 - highly flexible system
 - 700 - 10000 notes (4 notes)

structure can help or hinder localization
 - modulation of high amplitude: contact calls, terrestrial predator warnings
 - Thin, high-pitched, limited amplitude, aerial predator warnings
 - sound structure adapted to the environment
 - dense forest: low freq, more fluid songs
 - open fields: higher freq, buzzier notes
 - urban area birds:
 - increase pitch & speed

songs v. calls
 - songs: (prose/lyrics)
 - primarily under influence of sex hormones
 - reproduction (attract mate, define territory)

calls:
 - coordinate behavior
 - signaling (pred warning, food source)
 - songs can be innate or learned
 - learned for passerines, parrots, hummingbirds
 - (harsh structure is innate)
 - what they hear is not song
 - no song

What's innate is the pattern
 - about 150 days "subsong" experimental
 - full adult song about 200 days
 - Even learners have basic innate song & auditory template
 - and some are "imprinted" on their parents
 - Patterns is shared amongst ancestors

CALLS:
 - CONTACT CALLS:
 - broadcast location
 - maintain group cohesion
 - ALARM CALLS:
 - broadcast the presence of danger
 - Dear eat eggs
 - nestlings

Flight calls:
 - maintain night migration cohesion

5 - corner ALFRED Night migration recorder
 DATA

11/12/19 Research techniques
 COUNTS: Determine: trends in pop
 - live-transmits
 - predetermined path: habitat selected

- protocols for shift/stop time: monitor migration
 - sight/hear on path is range-find
 - "distance sampling"

Breeding Bird Surveys (a USGS program)
 - 73000 routes
 - EA route is 24.5 miles long w/ 50 stops

POINT COUNTS
 - broad, linear
 - not tied to road networks
 - go to point, stop a moment to allow habitat to go back to normal
 - listen 6 mins & laser range-finder
 - 1st, 2nd, 3rd - minute specifications

Hawk watches
 - Nest searching:
 - estimate productivity
 - determine habitat selection
 - evaluate parasitism rates (b.h. cowbird)
 - bird nestlings

Territory Mapping
 - Estimate pop density, productivity
 - determine habitat selection
 - study breeding behavior

Bird Banding

Distro intumix, VDB

Digital Humanities =

- Academics going digital
- what are new libraries?
- media is a part of it

Hollis - media includes all codes

Difference

sounds that are
sounds, vs. music

12/03/19 | sounds -
response, parameters
already listening as a parameter
had ~~curate~~ ~~video~~ ~~show~~ in the box
Tom Gunning U. Chicago
'cinema of attraction'
presentational vs. representational
corporeal embodied knowledge

WWI mass death, leads to
consideration of technology
- human exhaustion
cinema, by virtue of
tech to make it, has
a unique voice here.
(paramedics take too)

photogenic (intensity of shot/situation)

Peer: The scene is
changing. This medium
has scholarship its not
had before.

Cultural conversation
is shifting. What the
future of the medium is.

Kittler German theorist
: Typewriter
changed the
world

"Electric culture is
a new world" McLuhan

Brakhage Sound Magazine
"Seeing Time" book

12/12/19 | special post crit/retirement

Everything
Relates.

Limiting thematically

Things that don't
have equal weight
are given equal weight

Presenting of work
- store in all windows
- what is important?

- ID it, 'stand by'
it

- How do I process
information?
- show that.

- CLARITY

- what's taking a

Ted Morgan:
Alfred aesthetic
- heaping everything
on & call it cross-
disciplinary

single channel examples

- Lincoln Center small theatres
- Maya Deren Theater Auth. Film
- Bard/Lightworks Archives
semiotics of screening
- chairs
- light (fade down)
- material plays
- light (fade out)
- people know how
to respond to this
- takes us out of
white cube & places
us in cinema
- walk-by culture
of white box challenge
- snowgrass glass box

install SOUND SITTING

- CURTAIN IN FRONT
OF DOOR

- "ART for Adults" = Drinks
- metanomic series confort
- elements suggest space

DMX

Peer - exhibition schedule

→ timed to fade
down - play piece
fade up

sit down viewing
vs
distribution (DVD)

- EDITIONING

Anda Wisby Critical
Cinema

Text -

- ACCORDI
- ANDERSON
- BURROUGHS
- JON GIOVINO (cynical hipster)
- read poems warhol's sleep
- played recordings
- also read the poem live
- sync prints
→ new book out

camera / setup / dispositif

NAMING

OLD / NEW WINE / BOTTLES
synthesizer doesn't
say enough

- what is the
process? module?
NAME?

- live camera
is unusual now.
what is it called?
system
- machine vision
- industrial tech

Vocabulary

- what are they
called?

- vocab as corrective
to the conversations
direction

"But now that God's shimmering bubbles, the celestial domes, have burst, who could have the power to create prosthetic husks around those who have been exposed?"

- Peter Sloterdijk

PineBoyPoli Complex

I'm interested in the material at the point of execution.

What are my research aims?

What are my theoretical concerns?

What are the intentions of my making practice?

Personal philosophy as revealed through my research into vision, touch and desire for wonder. (P 102 Deviated Histories, Thi Phuong-Tâm Nguyen)

establish a connection between our making and the world around us

thaumaturge - a worker of wonder

The case for wonder.

Difference between vision and perception.

What is anamorphosis in video?

Intellectual thoughts can kill ideas.

Would my work benefit from storyboarding or other premeditated structure?

"The picking of the process is the element of control."

- Peer Bode

4 composers Peter Greenaway (Cage, Monk)

unified time structures
chapter moment form
time in things, instead of things
in time
- each sound moment to own
time structure, people can follow.
(Sirius)

chaos - XENAKIS
crutchified chance

why this wow?

a set of Q's that
chance answers

hierarchy = Higher
Angels

shifting in AI

Artist practice is the
NUDGE

- overtaken window

Blokus

camera could pan to
something SURPRISING

Hot signal in Scope

proc amp as tool

10/30/19

Pinhole Video (better out
doors)

- copper / tin make hole (pin)
- sand burr - / buff
- Put where ~~frequency~~ ^{frequency} was
- tape in places
- can make multi hole
- larger hole blurry
- smaller = sharper

11/06/19

Setting up is how
you get paid
- initial forms by -

- picture of situation
- explain tech issue
- email
- Live discussion
w/

Resolve
the problem

- Fosdick (walls can be
built)
- canvas w/ shared E.R.C
- \$ for materials
- ant. of time

- Felt to block light
from Benys

Artist Books: Dieter Roth (pre desktop publishing)
 - Fluxus
 - contempt of Beny's Rochester
 - 100's of artist books taught this method 70s-80s
 - pedagogical
 - artist practice should be handed down through family lineage
 - taught Emil Schull
 - carried a book of baking disasters for inspiration
 - Desktop CPU options v. typewriter (copy camera)
 - more faults (ALL EIGHT NOW!)
 - color printing costly due to photo separations in darkroom
 - total dark chemistry fussy, had to register
 - print runs of 70-80k not uncommon because of the pain of making
 - JANSSENS was only art-history option for a while because of this
 - dissenting opinions could be suppressed
 - Desktop could affordably do short print runs (<500)
 - Book as precious, formal things v. ephemera
 - 1st thing printed in western culture was text, not Gutenberg's bible

photocopy & silkscreening cheaper than etching/lithography
 - woodblock affordable for propaganda posters
 - zines, music, skating, surf, scenes
 - artists interested in hybrids about what is a book?
 - early Allentown shoe box / box / portfolio
 - UV Ultra - see through
 - Expertise, access, equipment ARE what cost so much pre desktop publishing

10/22/19 IN-Design
 File, New, Document
 Size:
 ecom = 8 1/2 x 11 letter, gives 2 full pages out of a press sheet
 Tabloid 12 x 18, 12.5 x 19 (made to 11 1/2 x 8.5 x 1)

- often charged by sheet when w/ trim marks
 - press sheet is the size of paper through the press
 - magazine size fits
 - pricing = how many through press
 options:
 - picas - inches 84x11
 - landscape
 - facing shows what's next to each other (to see bleed)
 - margins default 1/2 inch
 - bleed / slug - bleed needs to be 125 = 1/8" is larger than project
 - gutter is center of facing pages
 - bleed in gutter can cause issue
 - bleed on top, bottom, left, & right
 NOT INSIDE
 - Red line notes, bleed line
 - cuts at black line
 - into @_edge is not safe.

- anything critical keep @ least 1/2 inch away from margin.
 - Add image & text
 - document creates paths/links to folder of media
 - image embed file, PLACE
 - can choose mult @ size
 - Prep before ID, PS
 - Image size 10 x 16 300pi
 - Adobe RGB
 - Image as close to final size as possible
 - make optimized version
 - ID ~~ctrl~~ cmd-shift scale image
 - Text tool, Draw Box
 - Placement on page
 - guides in master sheets (top right)
 - view display high quality
 - work in Adobe RGB
 - edit color settings

- SAVE
 - PACKAGE
 - look for red/errors & fix
 PAPER: Printing book here:
 9400 mohawk Superfine
 (3 - copies free) 17 x 12.5
 80 lb ultra white (can glue bad)
 100 lb white (slightly warm)
 too heavy to turn (box set book)
 Text weight - body of book
 grams/weight meter both
 80lb text is diff. from 80lb cover
 COVER: Front/Endpiece
 postcards
 posters
 30 - photocopy
 60 - books/text
 80-100 - Artbooks
 100-120 - Artbook-book
 XUAN paper 27" or a meter
 - we do all binding
 - perfect binder w/ wrap around

or stabfest binding
 1/2 inch non - top, left, right
 1.5 inch bottom
 Print settings
 - Size for paper (19 x 2.5)
 - color matching Adobe RGB
 - page setup: cut sheet
 - paper handling, main
 - Art paper, heavy weight all paper
 - Advanced 600 DPI
 - 16 Bit
 - ignore warning
 - SAVE
 - Images: Perceptual
 (better for Photo)
 other better for flat design
 Printer load

- cut sheet
 - 1st never on right
 - rise edge to top & right
 - red lines
 - close lever & top
 - Enter in type of paper
 - Heavy wt. Art
 - hit print on cpu
 3 thesis nov. w/ EJA, can make 4th from outside
 - 1 for thesis chair, 1 more than others
 - 2, 3, 3
 - 3, 3, 3
 - 3, 3, 4
 4cr. written thesis w/ Joseph
 - wk & analysis 4 (16)
 Reviews Dec 9 & 10th - 45 min
 - outline of written thesis
 - can be bulletted list (page)
 - proposal for show, what & where

Kzhua Iriwa Li
 (Nov 100)
 11/05/19
 Screen - light behind
 - RGB for mixing
 - additive
 monitors close to 100%
 Print: 3mat - # of colors
 Adobe RGB 150 files
 2 for each dot
 - cm yk
 - subtractive
 - white of page
 - no pure white paper
 Adobe 97.72%
 RGB for printer
 Bit depth = # of layers
 on screen
 - Paper is not a light surface

- COATINGS Porcelain (clay/cats)
 - holds ink, shiny surface (calcium)
 - varnish to pop image, protect
 - shiny surface can be desirable or not
 - In neutral, magnesium added to remove acid (tree pulp paper has acid)
 - cotton paper has no acid
- glossy v. matte
 - blacks deeper
 - see reflections more
 - scatters light
- ink (intaglio black) is deepest
 - litho, intaglio inkjet less so
 - silkscreen (and H2O based) gone
 - great variety (enamel inks) but CANCER

UV ultra - Vellum-like
Translucent, end print w/ 9400
but results are soft

02/05/20 MYLES

- color - chemical / too contrasted harsh/obvious
- Red/Blue/Black - richer
- medical imagery, understand what you're looking for, don't see what you're looking for
- snapping fingers is jarring (integrate as Pleasant)
- other sounds (Birds)
- not engaged w/ it pushes Joe away - wants to be drawn in. Repetitive doesn't shift or change like other sounds could be composing it. Sound library
- camera reference can only go so far
- lot's of things in the studio could be interesting
- Make one wonder why is this here.
- not just referring back to self. Movies, Theater, self-referential
- how to take tools outside of the studio

- Books/Prints collection of things from any subject, Easier
- Get beyond Phenomenon

REALLY DIVERSE CONTENT

- what meanings in form for vessels?
- Filled w/ meanings? Engaging
- Grey Hill (transparencies) human faces, changes triggered by movement, changes are surprising & varied. Different IDs, put together brings sense of humanity. Jolted/Provoking surprising long lasting impressions
- what is my image vocab?
- 10 images that define me.
- Trust intuition: But follow up! Take feeling, try to figure out what it is. Let it trigger meanings.

- How to evoke similar feelings & meanings. what happens next?
- Find it & take it, extract it, manipulate it.

10/01/19 Eyes have it

Low-REZ, is there A WAY of increasing rez / Familiar
How is it A step forward
Easy/Quick (Reconsider)
10-steps back
something that has more impact in Holmes (Redo)
- make images for the sounds, images all seem on the surface
- whole new piece around

- sound
- what is MASKING
- hide id (Masquerade)
- BECOME other Entity that the mask represents
- TRANSFORMATION
 - Pre columbian, Aztec, African
 - intense, YOU ARE
 - The person wearing mask becomes different
- TRY to INHABIT ENERGY, DON'T DECORATE IT
- where the psychic sound/space can take you.

GET OBSESSED w/ SOMETHING

- GO CRAZY
- OBSESS OVER EVERY DETAIL

ELK

VLA, Socorro
Bosque Del Apache
NWF
Closest Bird Access

- Bernstein Funds Provost
- Divisional Funds Andrew

FLY AIBO
Socorro 1 1/2 hr drive

10/29/19

Light room

- export long edge
- 1/4 inch larger each dimension
- if image is 3x6 3 1/2 x 6 1/4

- make template in In-Design to A-states rec size
- manually insert crop
- Box - illustrator, vector
- Don/Eric
- cut & score?
- color fronts of live

T-shirts
H - add $\frac{1}{8}$
W -

5x8

5.125 x 8.25 x 300

$\frac{1}{2}$ book

curves

convert Adobe
RGB

keyboard cmd

- curves
- dodge burn
-

- Lightroom,

lens correction
remove

clarity - 10 - 30

5.1267 x 8.25

11/05/19 4 copies per
press sheet (12)
100 pound stock

or 80 pound cover
TAROT 120 pound cover

Bird Wing Polymer
Plate (website
Elizabeth
Pellathy)

12/03/19

cmd - O see All

lasso / Rubber
(2px) Stamp
(soft)
Drop opacity
to blend

softer Edge shadows
40-57 opacity

Image
Adjust
Replace color
sample grey
adjust lightness

Eraser tool
(totally soft)

Flatten

Contrast curve
75 down

25 up

convert ARGB

shift adds
opt delete
selection tool

lasso
copy & paste
Edit
Transf / WAP

01/29/20

Buffalo Zoo Bird of
prey

Mohawk superfine

Ting glin

book @ grid display

- copy stand
- canon software

"Things often start
with a little quote."

- Joseph Scheer
01/30/20
Thesis writing

Ex Libris markings

2/6/20 Thesis Prep

720 x 486

75 DPI

4x5"

8x10 10x14

16x20"

2/12/20

Focus stacking

2/28/20

- How to print?
- Paper?
- size
- slow paper in
photo/print?

- Touch-up tips for PS
vs. LR

- Dinkuan's color process?
DUO-TONE / TRITONE
- my mid term time?

CAMERA RAW
image adjustment
curves
cmd + M

info open

Flattened image

ing - Adj - replace
color.
dropper - PART
- shift = Adj
- lightness
- Do multiple
A bit @
A time

Brush
opacity, 50

Digger brush
soften edge

- grayscale
- discard
Dustone
- to itone
NAME
Chase
color
- play in/chrke

- convert to
Adobe RGB
to print

24
18

MAY 7th final thesis
defense on Zoom
- Finish PDF to Joe
MAY 6th

Modular Video Synthesis
Voltage fluctuating over time

Signals are patched between outputs and inputs
These paths are not predetermined by normalization, file type, or signal protocol (as in software environments)
Signals can be traditional waveforms, CV from function generators, and video from a camera input

Video Frequency Ranges:
vertical frequency range (~30 Hz to ~150Hz)


*The question of how to playback and capture video using Blackmagic Intensity Shuttles comes up regularly so I'm documenting a working solution for future reference. Most recently the question was asked in this thread: <https://community.lxindustries.net/t/blackmagic-intensity-shuttle-output-to-visual-cortex/1551?v=3375>

For playback of video from Mac, **Syphon** is what holds everything together for me. My current workflow is this:

Signal Culture Frame Buffer (version 4.0) to open and playback video file (This can be done numerous ways, with any app that can output to Syphon (Max/MSP/Jitter, etc). Frame Buffer is just what I happened to be using at this time).

* Select video file for playback by clicking on Video File and navigating to your existing video file

* Select Settings, Video Input/Output:



Under LIVE VIDEO OUTPUTS turn on Syphon Output:

DEVICE INPUT / OUTPUT

LIVE VIDEO INPUTS

Choose Monitor for live input

Choose Device (Advanced Users)

Frame Buffer HD Camera (v. 4.0)

Choose Format (For Black Magic use Utility App)

Choose Input (For Black Magic use Utility App)

Syphon Input ON / OFF

LIVE VIDEO OUTPUTS

Syphon Output ON / OFF

Black Syphon (version 4):
* Under Syphon -> Blackmagic
* Audio/Video Source, select FrameBuffer from dropdown
* Video Output Mode, set to desired output, in my case NTSC:

DEVICE INPUT / OUTPUT

LIVE VIDEO INPUTS

Choose Monitor for live input

Choose Device (Advanced Users)

Frame Buffer HD Camera (v. 4.0)

Choose Format (For Black Magic use Utility App)

Choose Input (For Black Magic use Utility App)

Syphon Input ON / OFF

LIVE VIDEO OUTPUTS

Syphon Output ON / OFF

OUTPUT from Mac to Visual Cortex on 1st Thunderbolt Blackmagic Intensity Shuttle:
Shuttle YPbPr outputs connected via RCA to LXZ Visual Cortex YPbPr inputs

INPUT from Visual Cortex to Mac on 2nd Thunderbolt Blackmagic Intensity Shuttle:
Visual Cortex YPbPr outputs connected via RCA to Shuttle YPbPr inputs

Capture using software of your choice, Blackmagic Media Express, Premiere, Etc. Configure each Thunderbolt Intensity Shuttle within Blackmagic Desktop Video Setup.

NOTES: This has worked for me using 2011 MacPros and later. I have no firsthand experience with USB3 versions of the shuttles. My understanding is they can be troublesome to setup with certain chipsets. In the setup I describe above, things can sometimes finicky to setup, especially if the hardware has been recently configured differently. I find it helpful to reboot devices regularly while trying to bring each step in the chain online one at a time.

For additional information about running a dual setup, see this thread from Eric

Souther here:
<https://www.facebook.com/groups/lxindustries/permalink/814631635374825/>

Leslie Rollins and I got two Blackmagic shuttles to output from CPU into LXZ and back to CPU for capture. You can do it all in MAX/MSP or Premiere and Blackmagic Media Express combo. The patch includes an xfade for feedback. (photo credit to Woody Vasulka)

You can play with the max patch here (granted 2 Blackmagic shuttles are needed):
App: https://www.dropbox.com/s/0pnuwbt42n1k/BM_BM_app.zip?dl=0
Patch: <https://www.dropbox.com/s/a1vqgh4ic9r3u9/EightYES.maxpat.zip?dl=0>

Memory Palace: How to make, format, load, and use still images

LZX INDUSTRIES MEMORY PALACE STILL IMAGE LOADER INSTRUCTIONS

- (1) Still images are loaded from /stills/ntsc when Memory Palace is in NTSC mode, and from /stills/pal when Memory Palace is in PAL mode.
- (2) Images are organized in sets of up to 32 images. Each set has its own subfolder, located at /stills/<format>-<set name> on the SD card.
- (3) The native resolution for NTSC stills is 720x480. For PAL stills, it is 720x576.
- (4) Supported formats include JPG, PNG, BMP and GIF. Image formats should be ARGB 8-bit, RGB 8-bit or Grayscale 8-bit.
- (5) Thumbnails for each image should be created and stored in /stills/<format>-<set name>/thumb.
- (6) Thumbnail images should have the exact file name/format as the source image and have a resolution of 128x96.

Load still images on MP:

- Connect USB cable to MP and CPU
- On MP navigate to Enable USB Access
- MP Drive should appear on CPU desktop
- Navigate to Stills/NTSC
 - Each subfolder can contain up to 32 images
 - Each folder contains stills and a thumb subfolder
 - Stills default size 720x480 pixels
 - PNG, JPG, BMP, or GIF
 - PNG carry Alpha Channel
- Each file requires a corresponding thumbnail stored in the thumb folder
 - Each thumbnail must match the source image name EXACTLY
 - Thumbnails default size is 128x96 pixels
- Load images:
 - Drag folders or stills from CPU into MP default folders
- Eject USB drive on CPU
 - Disable USB Access on MP
 - Unplug USB cable

Create still images for MP:

- Photoshop
 - New File
 - 720 width by 480 height (pixels)
 - Resolution doesn't matter

- Color Mode RGB
- Hit Create
- Can draw/create using any of PS tools
- Open existing images in a new window
 - Select L, copy it, and paste it back into new file
 - Can then adjust size and positioning as desired
- Save file as PNG (Alpha) or JPG (no Alpha)
 - Save into image folder
- Create corresponding thumbnail file
 - Image Menu
 - Image Size
 - Turn off width/height lock
 - 128 width by 96 height (pixels)
 - save into thumb subfolder using EXACT same name as full-size file
- Alpha Channel workflow:
 - Carries transparency information with a 4th channel that can be used as a mask
 - Follow some steps above to set up new still image
 - Layer
 - Layer Mask
 - Reveal All
 - Looking at Layers will reveal original image + a plain white mask
 - Wherever black is drawn into the layer mask will make that part of the image transparent
 - Where white is drawn into the layer mask will make that part of the image appear
 - Can paste in other images, or draw gradients, etc. into layer mask
 - Make sure that the edges of the image are clearly contained in the alpha channel
 - Mask layer stores the Alpha transparency
 - Color information stores in RGB channels
 - DELETE background layer before exporting
 - File/Save AS/PNG

Maya Deren Headless Horseman

Her talk about voodoo, Haiti

Gary Hill Why things muddled up

Gregory Bateson cultural anthropologist
Metalogues, metalanguage

Mise en scene Alice in Wonderland

Export 1992 "Postmodernism is dead Peer."

Exfat MBR not GUI for Windows/MAC

Holmes projector: 1200x1960 16x10

Humankind by Timothy Morton

Vibrant Matter by Jane Bennett

Mary K. Greer's Tarot Constellations: Patterns of Personal Destiny

Donna Haraway

Karen Barad

Peter Sloterdijk

Intersectionality

Wording

Future Fiction

Speculative Realism, Fiction

Divisions

1. 0.625
2. 1.25
3. 1.875
4. 2.5

40

Apps to reinstall on Safou:

Black Syphon:
<https://vdm.vidvox.net/blog/black-syphon>

Blackmagic Desktop Video:
<https://www.blackmagicdesign.com/support/>

MPEG Streamclip:
<http://www.squared5.com>

Photosounder:
<https://photosounder.com/buy.php>

Samsung PortableSSD (1.6.0)
<https://www.samsung.com/semiconductor/minisite/ssd/download/portable/>

Genki Software:
<https://genkinstruments.com/software/>

SPEAR:
<http://www.klingbel.com/spear/downloads/>

Syphon Recorder:
<http://syphon.v002.info/recorder/>

Syphoner
<http://www.sigmasix.ch/syphoner/>

ScreenCaptureSyphon
<http://twinklfe.ug/ScreenCaptureSyphon/>

Toast 11 Titanium

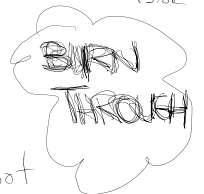
UCP 2.0.11
<https://www.decimator.com/DOWNLOADS/DOWNLOADS.html>

WD Drive Utilities
<https://support.wdc.com/downloads.aspx?c=171>

Vizzable:
<http://vizzable.zeal.co/download/>

These are all important
because they are not important
together they weigh more
and I can't just brush them
aside

don't fit
be not fit
they can't
they cannot
you shouldn't
you should not
smoked out, smoke it out, don't
do not waste space use it all
4P
Be certain to finish. End it.
With strength & will.
Force of will.
Love under will.
Go whole hog.
spit it out.
spite. spirit. stop. start.



Tonight I will demo an Artist Talk.

- How many of you have heard an artist talk?

What are some elements of an Artist Talk?

- List elements:

Reason I'm demoing this for you is:

- if you become an artist you'll be asked to do this
- think about what you would include
- as you're listening pay attention to:
 - What have I not included that you've heard in other AT's?
 - What have I not included that you'd like to have heard that you'd

like to know about me, or another artist

What would be something that you would include if giving an artist talk about yourself?

At the end of this Artist talk we're going to talk about those questions, so listed to what I'm saying w/ them in mind.

Books Q: A) What are some benefits as an Artist of talking about your work?

B) What are disadvantages about HAVING to talk about your work?

C) What are similarities between AT & crit?

D) Like C, differences

Intro Self:

Before Q & A: Tell them what I included for THEM.

What I thought would be interesting or useful to my audience

Stitch Drawings in Photoshop

24x24
30x24

Scan to show deckled edges 400 DPI tiff

Open new canvas 30x24

Drag 4 scans onto canvas and rotate/place as needed

Rasterize

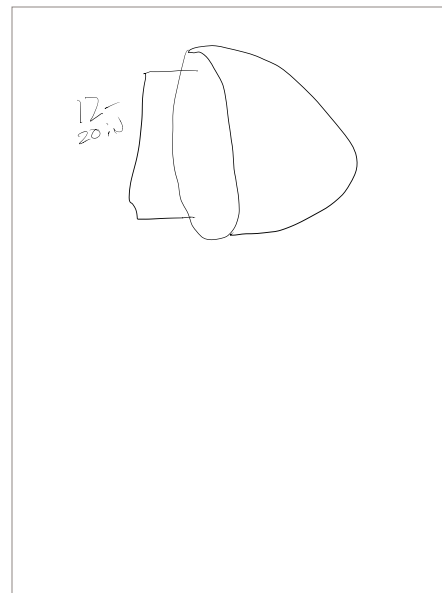
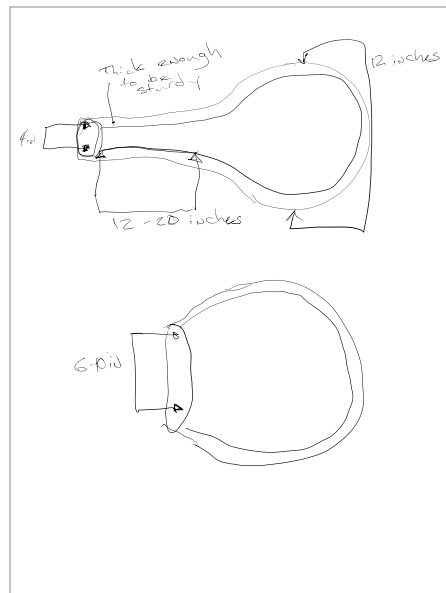
Blend mode difference, move slice to top layer, will show black when aligned well.

Save as tiff

Met BREXUR
driver
vasulka: 1, 2, 3, 4

1/2. IRINA

@ FRESKO
COLLECTIVE
ORG



Glue book binder

1/2 hour in before to melt glue

3/4 of inch liquid glue

Two power on right side on

Clamp button to open close clamp, hit X button to open

Bend paper, pinch it, then open it to put air in it

Put in slot and hit X to close

Then align line with spine on far left side, measure cover sheet, find center, account for spine

Move dog on top to hold cover, make length longer and trim it, shim closest dog with heavy weight paper folded in half

Adjust thickness (cm)

Hit start, hold carefully

Alcohol cleans excess glue on left side track

Touch Designer notes

To pull a parameter window out from a window to a higher window right click, open, and scroll out

Tab opens menu
P shows parameter box

TOP: Video
CHOP: Audio
SOP:
MAT: materials for 3D objects
DAT: more complex data sets
COMP: containers for other objects

Vector Geometries:
COMP: 3 things needed: Geometry, pop Camera, & Light —> RENDER —> Movie file out

Light works with phong only for materials
MAT: phong, drag drop image
Click and hold to select finer or coarser increments

If you can't see anything try hitting H for home

Drawing/Line:
MAT:
Wireframe (drag/drop on geometry)
Line: can be confusing

Photoshop: TD exports at 72 DPI (print quality is 300)
Turn of resample, change to 300

Render : fit resolution 8000x8000 DPI = 26x26

To place new node within existing signal flow, right click, insert operator

Too add additional pieces of geometry:

COMP add geo
Composite multiple things

Rotate Geometry (to animate)
CODE: absTime.frame (hit enter) [applies frame rate to rotation (to slow use * a decimal number) modulo % bounds min (0) max (360)]

(Blue)absTime.frame*0.2%360

left right modulation use audio osc (-1 & 1)
Translate x
Drag channel 1 on top of number, (green) export chop

Anything with numbers, gray constant, blue expression , green,

Instancing W = wireframe P = points
In geometry turn down detail

Inside geo turn on instancing

Change blue to green

Node : transform (scales/rotates object)

Sphere, Transform, Sop to

Turbosquid.com good for obj

To map OBJ:

Go into GEO, delete default geometry, drop in new OBJ, SOP Attribute Create,
Compute Normals & Tangents on. Render/Display

Add texture to help wrap on model

Lights:

2 panel, geometry viewer, H to center

Xform - uniform scale (to get bigger)

Light - cone light
Copy paste for multiple lights
Shadows are expensive computationally

Instancing is in geometry sop:

Light
Camera
Geometry
Render

Instancing needs numbers for XYZ. Assignment is about depth (z space)

Grid

Viewer active hit W

To do it numerically (Transform for changing any geometry's aspects)

H homes the view

Green Sop to change blue to green, produces three values XYZ.

Drag to geo

Plug in XYZ data

Geo xform allows rotation of view

Transform allows scaling of grid

Camera z space zoom out

Add noise sop after grid

Sphere, attribute create, texture

Noise, circle, CROSS (absTime.frame to animate noise) (channel names can be added 1,2,3 etc)

Line material or wireframe

Printing: use 7200 (24x24) Pro License only!!

If using transform, can preview : comp over background color, change 0 to 1

Cross:

Grid & Noise Supto

Two sets tx ty

Go to cross

Comp Slider (0 to 1) (use range to adapt)

Map

Blend geos Sequence Blend

In can move colors to node

Particles:
Any geo can generate particle system

Trails

Feedback works on iterations
Cross dissolve between original and modified

TD/PS digital printing
24x24 = 7200x7200
30x24 = 9000x7200 pixels

Watercolor paper
Paper size, manage custom sizes, save

Files brought in, image, image size, uncheck resample, enter 300 DPI

TD printing:

Render, common, pixel res:

Movie file out, change type to image/tiff, hit recorder

For video, add to network:

Change to 4K 3840, or 1920x1080

Comp, add window, drag last file in chain onto it, opening size fill, borders off, monitor 1 (full screen on recorder), open in separate window

Select all and hide render.

Record about a minute

INTRO: TRANSFORM

Geo light can render
Hatch patterns, scanned in
Images as texture
Video

Sphere inside geo:
Add geo att create compute normals, tangents. Run into texture

Phong, color map
Textures tops, transform, colormap, absTime.frame, can tile/mirror inside transform
insert transform before and scale to get rid of white bars
Phong options: normal map from lights/darks, bump scale, height map (luma values) displace vertices

Make own textures
Ramp/gradient, animate (up resolution), animate phase, change period
Composite

PARTICLES:
Sphere inside geo, att create texture, small radius of sphere 0.1-ish
Instancing
Circle, Supto to grab data (Tx, ty, tz) render
Radius of circle over time (audio osc cv) Math, change range (incoming/outgoing)
Inside particles: birth, life expectancy, drag
Changes might take awhile to propagate to you
Forces can alter directions

2 view: geometry viewer

Slit Scan, ramp, time machine

Render to text3d to ramp to time

Clipping
Geo, obj, clip, makes plane which can be adjusted to cut it

3 osc to math, chopto sop, create chan 1-3, add variance

Use oscilloscope data, for instancing

11/04/19

Data and CVS/XLS files in touch
Drag & drop into TD comes in as DAT (pink)
Time (dates) lock on right to scroll
Separate data
DAT Select, select rows by index, start 1 all down, select column by index (go toe 1) use only numbers
Chops DAT to
Graph: use Chop lookup, drag data to DAT select
Lookup table needs to be some numerical range as dataset
Chop Lookup, connect to bottom of lookup
Timer, use constant and speed
Constant outputs a number (0.5), adds number to frame rate
Want this to go
Through our index range (length of collection of numbers)
Speed Limit type Loop (set min/max) plug this into top of lookup

Now use this data to do something interesting!

Change these numbers to sound
Chop audio oscillator
60 to 160 range
Math (change range from one type to another)
Min/max (check table data)
Enter min/max into math range, and define range of osc too
Tie data to other parameters:
Turn viewer active, drag and drop where you want it to go

Visual part:
Camer/geo/light
Grid in geo , w to see it
Transform into plane 90 degrees
Add noise
Top att create compute normals
Right click on thing you want to tie it to and right click, go out and box comes with you
Math, define range
Render
Start off low, and slowly get higher
Math

Display data:
Lookup table
Text in chops or sops
Drag lookup to text box
To get rid of decimal: Math Round
Clip allows you to cut edges
Geo, in, att create, render

Bringing audio in:
Other creatures in this world
Drag audio snippets in
Audio filter (default is low pass)
Use bandpass
Make sure you're hearing filter
Chop analyze, function, sum (amplitude tracking)
Math

Frog eggs
Geometry
Sphere
Box, wireframe, divisions, noise
Amplitude of chirping moves box
Use for instancing
Dot sop to
Instance (many frog eggs)
Bring in frog skin.jpg
Another audio filter at different frequency
If really jittery, before sending math, use LAG

Analyzing different types of things:
Bring in video footage to analyze imagery
To iso movement,
Cache (stores images and creates delay) (set output index to far right, reverse of default)
Set 4 frame separation from left and right
Difference between two signals (the thing moving, frame difference) can increase
difference increase frame store
TOP monochrome
Analyze (maximum, max gray values) camera in ceiling can track peoples movements in different quadrants
Top to Data (RGB luma values)
Math RGB

Performance:
Comp, slider
Math
Null object connect to anything you want slider to effect

Easy RGB color trick:
Specific color changes based on data, use constants in purple, choose colors, the use switch, blend between in switch index

Writing is a visual enclosure of nonvisual spaces and senses

For the renaissance spatial perspective was essentially a filing system for visual data; at last they knew where to put everything and where to look for it once they had put it there.

^(aka rendering chain)
TOP = Texture Operator
CHOP = Channel Operator
^{anything that is channel data}
- animation, input from devices, data channels, audio channels
SOP = Surface Operator
- 3D surface, 3D data flowing through SOPs.
MAT = Materials
- for 3D surfaces
DAT = Data Operators
- text & table data
- Python Scripts
- Table (spreadsheet)
- tab delimited, csv
SOP Views:
- Normals point out perpendicularly (90°) from the face of a polygon

- use to calculate lighting effects by the rendering engine
- need to know which way you're facing to know how to light your geometry
- Add normals. Attribute create top (normals & targets).
- if things look weird lit your geo might be missing normals
- mesh = made of quads □
- polygon = made of triangles Δ
All SOPs are calculated aCPU
60FPS means 16ms to get all work done (cpu cooktime)
Transform: Moving, Rotating, Scaling in 3D space
- Normals are LOST by moving positions (grid → noise = no normals)
- this affects lighting
- Restore w/ Attribute create (shift + H) = zooms to selected node
absTime.seconds
↳ time in sec for animation
- mult by .0 to show

- FFX allows importing entire scene
- lights, camera, animation, textures

Rendering

COMP - BASE - Like Basic
TABS - 3D objects - building 3D scene
- Fovus - UI create view
- other Network
gives location in world space, where it exists in scene
Geometry allows for render
- default as torus
- inside node, can add input/output material
- render tab allows for placement of material

Render Top: Renders 3D scene into 2D image

File: Export Movie (Non-realtime for high demand)

PBR MAT: Physically Based Rendering
- needs Environment + Light (comp)

Substance Top: (Realistic Textures)

Pulling Video from Alienware PC

2-5 minutes of recording

After geo in touch:
Lost purples in signal flow
Select all of them, Render: common tab, fit resolution 1920 x 1080

Add window object

Drag and drop last purple to window

Click Parameter top operator

0 is screen for computer, 1 is atmos

Opening size fill
borders off
open as separate window

If screens are mirroring, hit cmd p and choose extend.

Transform in signal flow, background color (for something other than black (alpha needs to be 1) over background color

Composite: Render: On top

Audio device out: Device output shogun inferno

Should see audio bars on shogun

Eric's Premiere for Digital Drawing

FX, right click, opacity, fade out at end

P gives pen tool, draw points, give 3-5 seconds of black

Fade in 3-4 seconds

Effects controls, select text, change font

Alpha Layering: stack them
Select all layers and Nest to fade all at once

File, Export Media:
H264
HQ 1080p h264 preset
Change output name
Video tab
Output/source should match
Render max depth
VBR2 Pass
Target bit rates at 40
Use max render quality

Erin Hoffman's time:

11/13/19
20:20 - 22:20
Anthony assisted

Live EboSuite

Establish in/out
Midi track for video
Master in Live as output

Midi, Video in, double click or drag
Evideo in:
Enable stream to select input

Select resolution High (1920x1080)

Extended desktop: Master
Eoutput onto master track
New window
Non full screen drop down: change to secondary (Mac 2)

EFX for MIDI: all can be mapped

External video uses HAP files
Econvert with eclipse
Video clips go into audio
Live/camera video goes into MIDI
Audiotrack can help loop clips with Warp mode, hit loop box , and save

Listen to how they use SOUND: Vocoder
Cecilia Condit NYT taught Palov
Robert Ashley
Vasulka Commision
Russian Duo (peer has clip)
Gary Hill

Audio in
Eclipse
Play clip

Master double click
Eoutput
Secondary display
Drag video to audio track
HAP preferred, econverter can translate

To make whole video loop bottom right tab
Warp,Loop/Save
If it freaks out click tab again
Other (for right tab) to get back to processes view

EFX:
ISF has hidden possibilities, ebo studio or standard to select, then hit the same
drop down for options

Palov's presentation:

Cmd M to enter MIDI mapping, assign to buttons, cmd m to exit mapping mode

Track transform to scale clips

Toggle Clip Device View or Shift+Tab to get to Warp Mode, Loop, Save

AVF Batch Converter for HAP conversion

Ableton preferences to remote MIDI on to map EFX

Milo & Wizard

TD MIDI Device, Performance setup

1920x1080

MIDI Dialog, Device Mapper
Device, create new mapping

MIDI in

Range is 0-127 for MIDI devices

Select object after MIDI in (before Math) allows you to select parts of streams

Can have multiple select objects

Audio mixer use math to add sounds together

Fade to black with Switch and/or Constant

Cameras + Camera Blend allows for different views

To grab images when working at print quality:
Pause playback and move numbers
Counter + Select
Keyboard in, R, Counter, use number to increment file name

Leap Motion uses Leap Motion Object
Palm, Pinch, X, Y, are useful to map

Tshirts book Inserts

UV Ultra on IBA

Thoughts

I care about what you care about.
Thank you for caring about what I care about.

A Pioneer and a Saxon walk into a valley ...

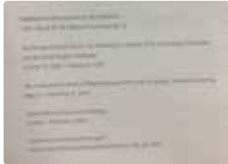
Just thinking about art makes me feel dirty.
Complicit.
I can enjoy making it.
But it seems like a lot of effort of late.
Hiding impotency.
Waiting for kid-gloved treatment,
Honors of the elderly man.
While barely out of childhood's yearning grasp
Not as fully grown.
Not ready for prime time.
But already well past that time,
A time where differentiation could have mattered.
Now seems very late in coming.
Full.
I don't want this to end but I can't take another.
An other.

Review needs

Outline thesis show (hope to show) : minimum of 1 page, bulleted list, what written
thesis will be. Synopsis, main ideas and topics. Whose working with you, whose
chair. Make 10 copies for faculty & distribute. Do not plan to discuss unless it's
brought up.

Can have 4th person.

15-20 presentation of work (showing/talking). 20-25 discussion, 15 min faculty
discussion.



Refinement

- Too much in soup
- More videos?
- make imagery more concrete in video
- more spatial in sound
- James: Diana Thater
- Camille Roseathorne
- Film makers

Andrew: IP

Prints

Fordick Nelson post exhibits
Michael James McKean

- vignettes
- tell a story but don't hit over the head
- what form? Each could have a different character
- what's the name

considered too much work to implement
- threat of removing the show

of the show?

- what is the trajectory?
- formality of it all
- how things get laid out?
- relationships between objects, sounds, images.
- curation
- w/ is the thing, i thing w/ other things

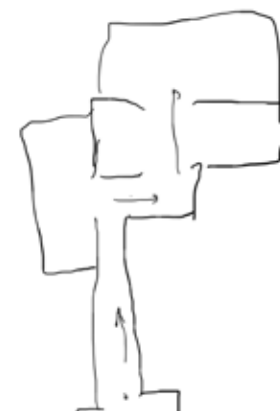
Art film Express - Premiere

Affinity - PS

Figure drawing 4:30 - 7:30

Simodgy

"What archetype is attempting to connect that can be facilitated through me for the highest good of all entities, animals, creatures, and people?"



Frankie's Painting Equation
Total CM of painting x 8 for grad
X 10 once graduated

The new code for releasing print jobs to lba is 7

- structures receive sources or information from signals that transmit information
- emitted in public space
- interference as new perception
- performance & graphic logo
- part of Documenta X 1997

Thesis Defense
or
M-T ^{Lunch} 12:30-1:30 or 4:30-5:30
After show

- mid semester crit just w/ committee
- still attend 1st year crit
- Around spring break

Thesis = work/Exhibitions

Thesis Report - Book

MARK is point person for E-file NAMING conventions

MA 0 11
drop dead
for printed
thesis

- Next week Bring in 3 interesting items Pay attention to how it starts & how it is organized
- 2 wks image & text

presentation

- 3 wks size of Thesis Report
- mid-term: Finish Thesis table of contents

Shivley "Goddess of Nature"
↳ I know her

- Sarah 12 acolyte (Nancy - head of religious orders)
- James "Obsidian" Elf Rogue that thinks he's a dragon
- Shump (Lo) Half-Orc Ranger scooter (rat familiar)
- Thock - left-handed Low Ditch Keep Goldfeather - neutral
- Neuthra Goddess 1st lizard of immortality folk 20 ft. tall - human & wavering
- Shassath - mother goddess Farsite

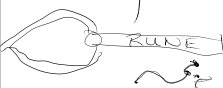
Zivilan - majority wisdom

- NORV** Brave 3 strong.
- Darklings wise
- twisted Fey creatures - stranger @ night
- potion resiliency
- transportation circle
- conduit to summon devil but elf died
- Devils realm of 9 bells
- Shard of Air
- 100 celestial damage
- Sylvan - Lefties
- Fey creatures

Sister Matilda A/Dead
 Sister Bone
 → infused like, magic
 in it
 - religion: Aerocrow 1st
 worship - AKA eagle
 minor deity, guard, protector
 of Antonia (person)
 - Princess of Divine
 Goddess ele. plane/air
 WAR between Yancibin
 worked over "peace
 control" EVIL AIR
 "spear of mighty wind"
 Yancibin, broke weapon
 & shards spread

through multi-verse
 - AARAKOCRA have
 only been on material
 plane a few years
 → good omens/Luck
 N.W.
 - Find something
 in nature, do
 something to improve
 it. Darklord
 SARAGONIS - God
 of Fire & Vengeance
 - sacrifice / Arcane
 origin of symbols

- ephemeral plane
 - conjuration spell
 & summoning
 (demon to weapon)
 → disadvantage
 for 3hr on human
 insight checks
 1:22pm
 Bhymans killed near
 cell
 iron hilt, handle
 leather strap
 pommel = ?
 ARCANNA - enchantment
 Rune
 internal origin

1200 XP
 + 2 silver
 + 10 silver
 + 5 silver found
 Attachment w/
 weapon necessary
 to use it
 - ritual burnings
 primitive cults
 pray to gods
 body modifications
 to show devotion
 - 9 swords w/ rune
 1 key,
 1 key: Black Rod

 - infernal
 magical
 kinds

devote service
 to SARAGONIS
 Fox - Yngloth
 - fickle friends
 - notorious devils
 - mercenary
 & go between
 - Devil & mortal
 prisoner -
 - thick gauze hand
 Robe, blood red eyes
 chains sound
 - mythical tale
 Humans see it as

history truth
 - Azmodius god
 of sin & 9 Hells
 went to celestial
 court to argue
 about legality of
 deals w/ mortals
 as long as 3rd party
 intervenes, upon
 death could argue
 @ celestial ct.
 broken alchemist tools
 Fishdyck: Dwarf
 stitching on cuff
 - looks like a forging hammer
 pattern
 city: morinthia

acolyte 150 yrs ago
 - angry, possessed
 - attacked burnt city
 down
 Priest of Reares

Taking moving parts of a camera and reconfiguring them.



TID
 Drop
 MP4 video

comp
 geo - cam - light

TOP
 RENDER - 720 x 6
 4320 x 480

COOP
 copy & paste 6x

- Framing & narrative is
 strong

- intro = strong abstract
 for all theoretical info
 in thesis

- "Art writing" - Eric's made
 he wishes he could write
 like I do w/ narrative

- Human Agency - reference
 from other writers, &
 Artists.

Haraway, J. J. P. J.
 "After Nature"

→ changed since industrial
 revolution (spiritual, resources
 through land)

Doug Clark Bio Tech

Conservation biologists

Valuation utilitarian, ecosystem services, what do bits supply? Can be
 reductionary, economic.

Intrinsic value of birds for what they are. Our perception of them should have no
 bearing. Whether or not we are aware they have value. Giraffe in Africa doesn't
 impact my life, but it has intrinsic value that matters to me. Contribute to scopes
 around us.

Gun-wrapped anfratresnel

Diaries

10/26/19
 14:24
 1

10/27/19
 11:37
 2

10/28/19
 11:53
 1

10/29/19
 6:33
 1

10/30/19
 10:01
 1

10/31/19
 9:20
 1

11/01/19
 14:58
 1

11/03/19
 12:26
 3

11/05/19
 7:10
 1

11/12/19
 6:55

1

11/24/19
 12:47
 1

11/28/19
 16:50
 1 & [redacted]

17:03
 1

20:24
 2

12/04/19
 9:45
 1

12/07/19
 16:32
 1

19:02
 1 & [redacted]

02/02/20
 12:31
 1 & [redacted]

Thesis Show Tech
 15 ft Lamberts is goal for projectors

1800 - 2000 lumens

Media player
 Short & normal

SP 890s 4000

LCD

40, 42

Plasma 720p
 50"

Joe Scheer's Adobe Photoshop Tritone steps:

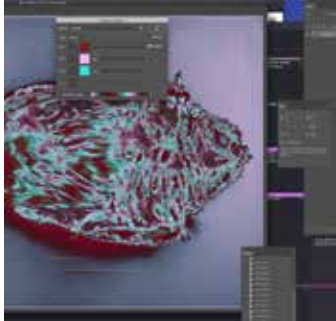
Flatten image

Covert to Grayscale, discard color information

Select Duotone, then Tritone option

Name chosen colors

Adjust curves:



Covert to Adobe RGB to print

Joe Scheer's How to stack RAW photos in Photoshop for focus:

File - Scripts - Load Images into Stack...

Browse to folder with files and select photos

Put check mark in "Attempt to Automatically Align Source Images"

Click OK

Select all Layers , Edit - Auto-Blend Layers - Stack Images

Place check mark in Seamless Tones and Colors

Command-shift-E combines all layers

Sharpen Un-Sharp Mask 85, radius 1, threshold 0

Save as TIFF

Print 24x36 with 2 inch border

Joe Scheer's DSLR/Copystand notes:

70-80mm for lens

1/30 -1/15

F8 - f11

200

Thesis book dimensions:

Try both:

7.5 x 10.5

And

7.5 x 11.5

Could use Cougar Cover or White Mohawk 24"

Unpopular opinion: we should not be transitioning in-school learning to at-home learning during this time. Distance learning is one model of instruction—one that works for some students, for some families, for some teachers. But it does not work for everyone. And suddenly expecting it to work for everyone shows the extreme privilege of those making the decisions to expect all learning continue at home.

Yes, some families are gung-ho and ready to take on this challenge. The parents are staying home from work, already work from home, or are a stay-at-home parent. They have ample internet speed and device access to go around for all their children and the adults in the household trying to telecommute. The children are still motivated and focused enough to work somewhat independently so parents can still manage their work and household responsibilities while supporting learning.

But let's face it: that is NOT the case in the vast majority of American households.

Many older children are now caring for younger siblings as their parents continue having to work. Many families do not have access to one—let alone multiple—devices with reliable high-speed internet access. Many students are dealing with significant stress as they manage changes in their schedules, carrying the weight of adult worries, and navigate a world of social distance from friends. Even non-technology-based pockets sent home require support and supervision for students to complete (even if it's all mastered work—what K-12 student is actually ready to be responsible for their own learning?). Not to mention our students with significant disabilities who require hands-on, concrete learning opportunities who are being all but forgotten during this time.

Additionally, teachers are not all ready to take on distance learning. Some have disabilities of their own that make this very difficult to navigate. Some are dealing with mental health needs due to this crisis. Some are caring for elderly and at-risk family members who need support. Some are trying to educate their own children who are home from school.

So you have students and families that are requesting work? Great. Work with your school/district to provide a list of parent resources. Encourage your district to send home optional packets for families who need non-technology-based resources. No grades. No assessments. No "business as usual." Because this is NOT "usual." This is a global pandemic. Let's focus on that rather than promoting inequities that the institution of education already so ardently upholds.

Don't know if this came from or through here, but it's pretty sane, so I'll share, courtesy Alessandra Motezuma:

Pedagogy in the time of an epidemic:

This is from Amy Young @ Pacific Lutheran and it's good advice for me and my colleagues:

1. Be kind to yourself and your students. Everyone is stressed, even if they're playing cool. That includes faculty. And that's OK.
2. Let's acknowledge that the quality of education will not be as good in alternative formats as it is in the pedagogical model we've actually planned for. That's OK as well—we're just trying to survive.
3. Do not read on best practices for distance learning. That's not the situation we're in. We're in triage. Distance learning, when planned, can be really excellent. That's not what this is. Do what you absolutely have to and ditch what you can. Thinking you can manage best practices in a day or a week will lead to feeling like you've failed.
4. You will not recreate your classroom, and you cannot hold yourself to that standard. Moving a class to a distance learning model in a day's time excludes the possibility of excellence. Give yourself a break.
5. Prioritize: what do students really need to know for the next few weeks? This is really difficult, and, once again, it means that the quality of teaching and learning will suffer. But these are not normal circumstances.
6. Stay in contact with students, and stay transparent. Talk to them about why you're prioritizing certain things or asking them to read or do certain things. Most of us do that in our face-to-face teaching anyway, and it improves student buy-in because they know content and delivery are purposeful.
7. Many universities have a considerable number of pedagogical experts on academic technology that we have only been dimly aware of until yesterday. Be kind to these colleagues. They are suddenly very stressed.
8. If you're making videos, student viewership drops off precipitously at five minutes. Make them capsule videos if you make them. And consider uploading to YouTube because it transcribes for you. Do not assume your audio is good enough or that students can understand without transcription. This is like using a

microphone at meetings—it doesn't matter if you don't need it; someone else does and they don't want to ask. At the same time, of course, think about intellectual property and what you're willing to release to a wide audience.

9. Make assignments lower or no stakes if you're using a new platform. Get students used to just using the platform. Then you can do something higher stakes. Do not ask students to do a high stakes exam or assignment on a new platform.

10. Be particularly kind to your graduating seniors. They're already panicking, and this isn't going to help. If you teach a class where they need to have completed something for certification, to apply to grad school, or whatever, figure out plan B. But talk to them. Radio silence, even if you're working, is not okay.

To setup BASH YouTube downloading in Terminal: <https://brew.sh/>

Run in terminal:

1.

```
/bin/bash -c "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install.sh)"
```
2.

```
brew install youtube-dl
```
3. To download youtube video:

```
youtube-dl --recurse-video mp4 PASTE YOUTUBE LINK HERE
```



Telework Plan and Agreement Form

This document is intended to ensure that both the supervisor and the employee have a clear, shared understanding of the employee's telework arrangement. Each telework arrangement is unique depending on the needs of the position, supervisor, and employee.

This telework agreement is not a contract of employment and does not provide any contractual rights to continued employment. It does not alter or supersede the terms of the existing employment relationship.

Employee Telework Information

Employee Name:	Leslie Rollins
Last Title:	UX Sound Design
Department:	Expanded Media
Supervisor:	Andrew Deutsch
Arrangement requested by:	Employee • Employer
Location where telework will be performed:	From his home
Telework arrangement effective dates including start and ending dates:	B block Spring 2020

Job Duties and Reason for Request

The general expectation for a telework arrangement is that the employee will effectively accomplish their regular job duties, regardless of work location. Please describe how you think your job responsibilities are suited for telecommuting. Please explain the reason for requesting the need to work remotely.

Need continued support for class instruction, especially now that we are online.

Work Schedule and Location

Day of Week	Work Hours	Work Location
Sunday		
Monday	6-9	home
Tuesday	6-9	home
Wednesday	6-9	home
Thursday		
Friday		
Saturday		

Employee/Supervisor Task Expectations

Work to be completed while telecommuting. Supervisor to check in with employee on daily/weekly basis to ensure work is being performed and employee is meeting expectations.

Employee Defined Tasks	Supervisor Defined Tasks
Continued support and research for Sound Design. Including software demos.	Research into free software students can use at home. Online Zoom meetings with students.

Telework Arrangement Modification

Alfred University reserves the right to cancel this temporary telework arrangement once updates are provided by State and Federal government regarding COVID-19 and the ability to return to regular business operations.

Equipment and Technology Access

The University will not provide desks, chairs, file cabinets, or other office related furniture. Employee should not purchase any equipment or furniture in connection with this telework arrangement.

The use of an employee's personal computer may be dependent on the technology and network connections used by the campus. Administration will determine which connection mechanism is appropriate based on operational need. Telecommuters using personal devices will receive instruction on how to access necessary programs. These must be tested before telecommuting can begin.

Minimal office supplies may be provided and should be requested during the telecommuter's in-office work period. Supplies will not be sent to the alternate work site. Any out-of-pocket expenses incurred for supplies, equipment, food, etc. will not be reimbursed.

The telecommuter must have an internet connection with bandwidth that is appropriate for conducting official business without disruption. The telecommuter is responsible to secure and pay for an internet connection. The University will not reimburse internet costs. The telecommuter is responsible for having a phone for all work-related calls during normal working hours and is expected to respond within 15 minutes to all electronic communications. If an employee does not have internet access and/or a computer at the alternate work site, the employer will not mandate telecommuting.

Additional details

Policies and Procedure Acknowledgement

I have read and understand the University's Temporary Telecommuting Policy	Employee Initials
	LR

Signatures

Person To Sign	Signature	Date
Employee		3/27/20
Supervisor		
Dean/Director		
Area Vice President		
Human Resources		

For HR Use Only:

____ Approved _____ Denied

Reason (if denied):

Office Use Only: Copy Distribution Employee Supervisor Dean/Director Vice President

UCO Application

Application Procedure:

Applicants are required to submit their application online via <https://jobs.uco.edu/> and include

- Cover letter
- CV
- Artist statement
- List of three references
- Teaching philosophy directed towards the integration of digital media in the art studio
- Unofficial copies of secondary and post secondary transcripts.

PDF or links to an accessible website

- 20 images of personal work or images/video clips (1-2 min in length)
- 20 images/video samples of student work
- Image list

Teaching Philosophy, paragraph three: give learning outcome for taking on corporate interests:

New pathways, new opportunities. How does new media exist in VR, Future media, AR

EIA Zoom Meeting:

https://vralart.com/?fbclid=IwAR14eavIPbvU_JR8QeGqRnHGrw4T6bhn5UdbqMKC-dgOWsqCUJNH9BdvZYwexplore

May 6 1st year grads final crit, noon start, 1/2 hour each. Expected to attend all.

Present 15 minutes, general questions from big group for 15 minutes, then 1/2 hour with committee.

Practice sharing media in Zoom
Practice and be prepared with what I show
Logical ordering would be helpful.
Share work & writing prior to official Zoom (PDF outline for them to follow along)

12-1 & 1-2 on Thursday Friday for second years

Reflections on my connection to indigenous traditions:

I watched all of them James. So great. Thank you for your curiosity about my engagement with indigenous understandings. I've not fully learned how to give full voice to my Potawatomi heritage as I've not been able to find a family record in the official tribal rolls. This seems to be a common occurrence in situations like my paternal grandmother who shed connections with anything not resembling what people considered proper "American" in the early 20th century. Her father was Filipino and mother reportedly as much as 50% Potawatomi. However, as a female lacking much cultural agency in polite society, much of my great grandmother's history eroded from her. Potawatomi lineage is traced matrilineally, so documents and records about her would be key to fully understanding my history. There are none as she was defined by her relationships with her husband who was also eager to pass for white. Without verifiable proof, I'm hesitant to fully claim space. However, my connection with the Potawatomi nation is lifelong as my father worked in Federal and State compensatory education for Title One support for schools scoring low in reading and math. His job saw him log over a million miles driving from school to school all across Michigan. He loved being behind the wheel of a car, and volunteered to visit the schools no one else wanted to because they were so far away. This territory outlined the contours of the Potawatomi bands throughout Michigan, and heavily focused on the Upper Peninsula. He also made certain that I participated with Potawatomi education and outreach programs all through grade school. I attended Northwest elementary school and at the time we were called the Northwest Indians. That name confused me and was one of the first experiences I had with overt cultural appropriation. In the small group of children who gathered with tribal teachers during monthly outreach educational programs, we talked a bit about our confusing feelings while gathering after school around a fire (Potawatomi literally means "Keepers of the Fire") and making fry bread on sticks we gathered.

All of that is to give you a sense of where many of the ideas in my artistic practice come from. I continue to explore and connect with as many teachings as possible and am grateful to be so geographically near the Pokagon Band of Potawatomi who are incredibly socially and culturally active and I look forward to the annual Kee-Boon-Mein-Kaa Pow Wow with great anticipation. You can read more about it here if you are interested:

<http://www.pokagonband-nin.gov/citizens/kee-boon-mein-kaa-pow-wow>

I immediately noticed your allying of First Nations with your email signature acknowledging Seneca history in Alfred and the surrounding areas. I never

thanked you for that but am doing so now. Thank you James.

I look forward to ANY additional links to indigenous artists creating in film, media, art. Please throw everything you have at me when you come across things.

Kindly,

Leslie Rollins

izzy (2007) **MANIFESTATION**
 Accumulation - hyper-representational
 - mirror, fragmentation, appropriated
 passivity, cough, lipstick
 - candle - single/dual
 structure - grid, rectangles
 windows, circles

YUNDA CYAN don't know what
 we look like use
 imagination to
 create self.

Fire/ASH
 - URBAN container for
 fire - slow burn / person's care
 spirit money? & recognition
 connection w/ visible paper to video
 - Traffic / repetitive pattern
 - Bricks
 - Location?

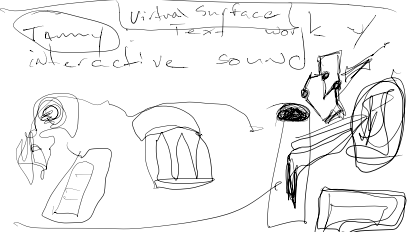

- hand held v. tripod
 prints - woodcut ^{don't like paper}
 - ~~chicken~~ / Alien ^{Tourist} ^{China} ^{France}
 Kiwi - can't fly (restoration)

→ prefers to be surprised
 michael ^{stream object} ^{event}
 destruction v. construction ^{A B} ^{relation} ^{collage}
 - does order matter? ^{photo} ^{video} ^{artifacts}
 - visuals related to sounds?
 - duration variations (start to big)
 - soe - 006 - love the variation
 skips, stutters, dissonances
 up & down - very synthetic
 options for samples / different
 sounds?
 - images 1/2 tone v. grid
 - all vertical

- how do 1/2 tones interact
 with bars? (over, under, through)
 curves, diagonals
 - range dimensions as variability?
 - do Algos construct

Di Zhu
 CANDY - child's desert
 * busy happiness
 feeling of candy
 prefers soft to hard

Tammy ^{Virtual Surface} ^{Text work}
 interactive sound

Patoma: shared space
 - sub-conscious image
 - poor copy of physical
 space
 - what space/time are we in
 "imaginary boundary"
 * loss of perspective
 "The space we see is time"

real objects, shared space,
 perspective (different views)

programming ~~is~~ compared
 to capturing perspectives

↳ chère chambre
 ↳ labyrinthine
 camera to flatten
 scan processing - circuitry

Go Zhuo

CV
 Artist Statement
 Cover Letter
 References
 Teaching Philosophy
 Image List

Hey! It's Leslie. I'm back in Alfred tomorrow (Wednesday) with Lisa to move out of
 my apartment and studio. We're going to get ice cream around 5 pm here:
 Dick and Cheryl's Big Dipper
 21 S Main St, Almond, NY 14804

We'd love to see you and say goodbye in person if possible so come out if you
 can. It's outside with space to practice social distancing! Yay!

Cancelled NYSEG:

TO DO:

Website needs Vimeo links and write ups completely redone for Student Time Based portion

Create new channel art for Youtube:

https://support.google.com/youtube/answer/29720037?hl_id=637283592332547758-837383927&ap=picker_channel_art&hl=en&rd=1

Create new Elio Header 2560x1440 Animated gif
Create Elio Avatar 360x360 animated gif

Broadly speaking, aleatory can be referred to in several ways (each with specific aspects that are more in play for a particular definition) that are oftentimes called chance. Other words like indeterminacy are also used interchangeably by some.

In my particular area of interest, synthesis (both aural and visual), it is incredibly easy to be hemmed in by the cyclical nature of electricity with its polarized up/down swings. This is often turned into a sort of clock, or demarcation of periodicity. When clocks are given priority, a rigidity can easily form. So folks of my ilk seek to undermine that in some way and this is often accomplished by strategic deployment of indeterminate factors beyond our control. An extreme example of indeterminacy in this respect is noise, for example, white noise which is evenly distributed random energy across all frequencies. Different colors of noise are not as evenly distributed, and are useful because of that.

If you think of the sound of a hard rubber ball bouncing on a wooden tabletop surface, you can imagine how far apart the sound occurs based on how high you drop the ball. From a very high height (and assuming a perfect scenario where the angle of the ball's bouncing could be controlled to make it return to the exact spot on the table surface for you to hear) the ball would start off making a sound very infrequently. So much so, that each strike would sound out nearly singularly, and seemingly have no relation to the sound that came before or after it. That is until the strikes start happening in quicker succession. Once they begin to merge into a single sound (because the rapidity of successive bounces increases each time) your ears would no longer perceive the individual hits. You begin to perceive the collective bounces as a tone with pitch, and the pitch has frequency which you'd hear as starting out low and going higher and higher until it's out of your hearing range.

So in the example of the rubber ball, and a mathematical precision of describing its sound, a sort of rigidity can be observed. Given perfect experimental conditions, the ball will always bounce the same way and give the same results. Cool, but possibly a bit dull after years and years of formalizing this as how a ball SHOULD sound. Music and sound has these sort of root assumptions built in through social/cultural/political means. Indeterminacy is a methodology to de-privilege this formalizing tendency. What I know about your own practice shares a similar concept in the use of play to uncover hitherto unnoticed possibilities.

Adobe Creative Cloud Alfred Credentials

Login: [REDACTED]@gmail.com
Password: [REDACTED]

You may already know all of this, but here's a few reasons a Kraftwerk is so pivotal not only in Electronic Integrated Art of the Alfred tradition, but how they laid the music production foundation to how ALL music is made today.

So this album from 1977 isn't necessarily Kraftwerk's best, but they are talking about Transhumanism years before it caught on in art & popular culture. Track 2 "Hall of Mirrors" & Track 3 "Showroom Dummies" are splendid examples. You can even hear the influence of early Punk in the song structure of "Showroom Dummies." Track 4 "Trance Europe Express" while not transhumanist in lyrical content, it literally created the music template for all hip-hop & rap that exists. That way of creating music defines ALL pop music production today. The electronic studio as a pop music machine starts with Kraftwerk and this song may be the Rosetta Stone for the world we live in today.

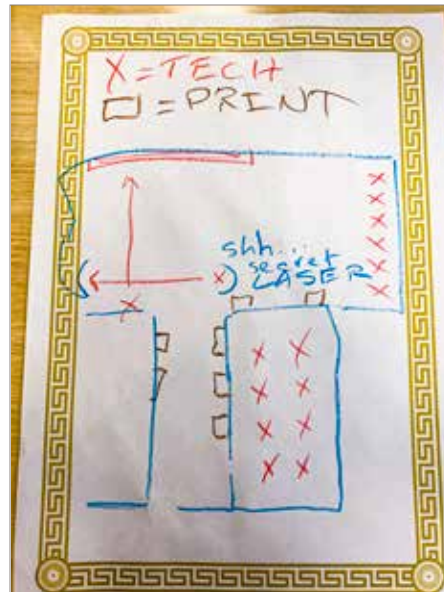
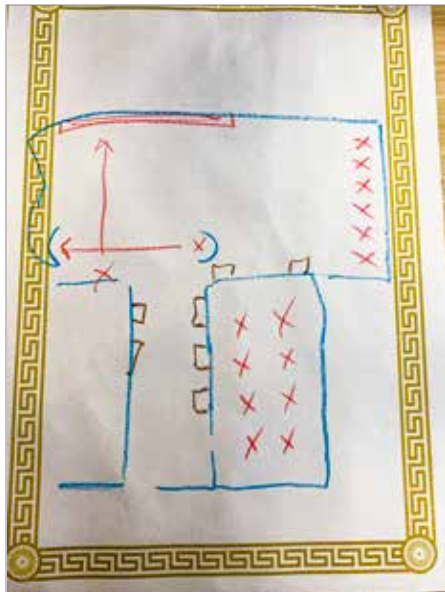
<https://open.spotify.com/album/0HHrViyBcnTepfeRvG52f?si=MmF1gJD9T02ByjphBSKbbQ>

Early rap utilizing the template:

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Probably my favorite re-rub of TEE:

https://open.spotify.com/track/2CdAkEU5exb93b35eCWY7aie_c5wHD0-SY2eag356mqw



Embodied Research

Embodied Research

Daily life during the MFA featured a staggering array of interactive opportunities. Each in-class participation (as a student or a teacher) took time and energy to consider the history and output of artists and makers, while sharing the technical details of how to work with and create within specific medias and traditions.

Ongoing studio visits with professors, fellow artists, and visiting scholars, yielded much factual information, as well as creative ideas, and philosophical considerations.

A steady stream of collaborative opportunities to work intra-disciplinarily with the student cohort in the School of Art and Design presented energizing and intriguing possibilities for performance, curation, and co-creation.

Access to regional world-class libraries, galleries, museums, performances, and facilities meant a constant flow of ideas gathered during travels to experience the richness of the surrounding geographies of the East Coast.

Abundant opportunities to explore and document the wilds of woods, geology, and waterways kept me centered and calmer than I likely would have been otherwise, as did my daily walks between my apartment and my studio space in Harder Hall.

Minute changes in the seasons, with attendant shifts in flora and fauna, kept me ever-engaged and noting.

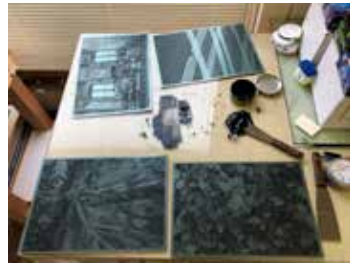
The common instrument in all of this is my body. My bodily experiences during these varieties of processes are somatically encoded for the long term. The following pages shares fragmentary documentation of some of my research.

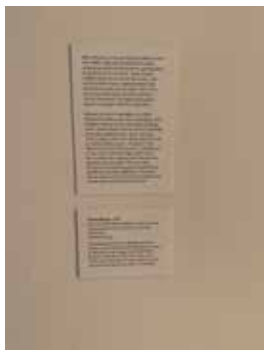
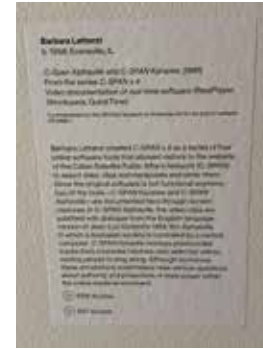


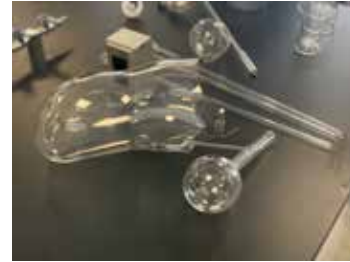
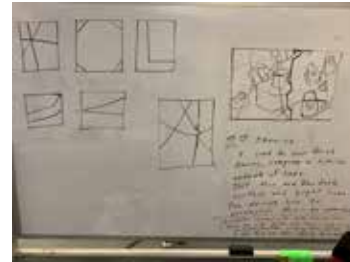
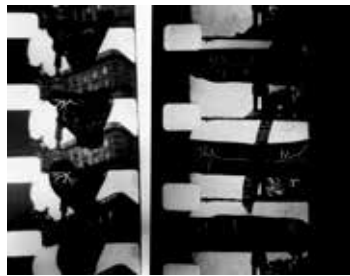
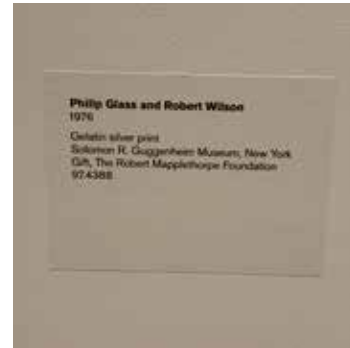
Studio visit with Dave Jones











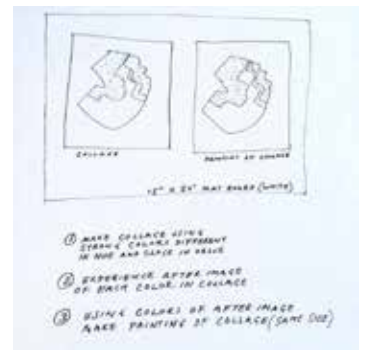
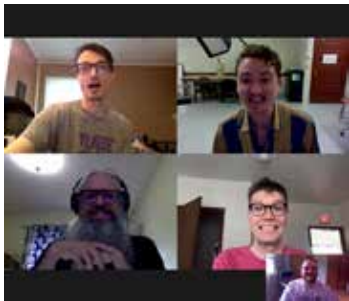


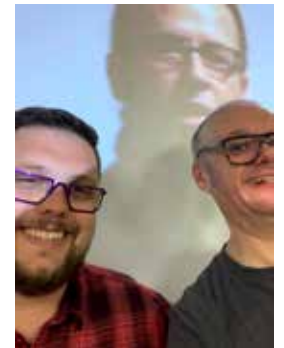
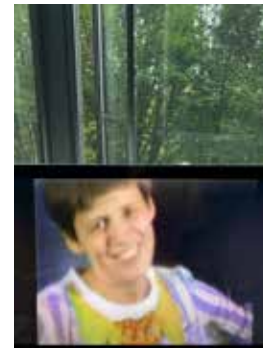
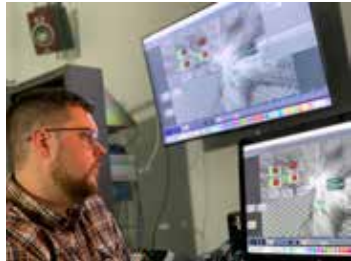
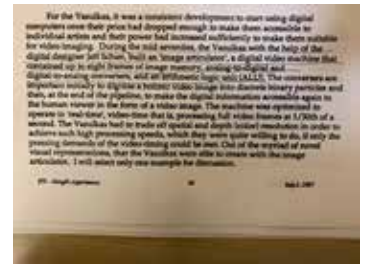
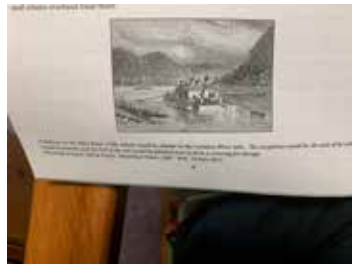
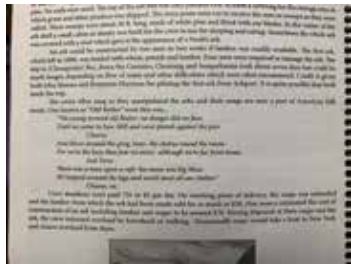
MUSIC FOR A REVOLUTION

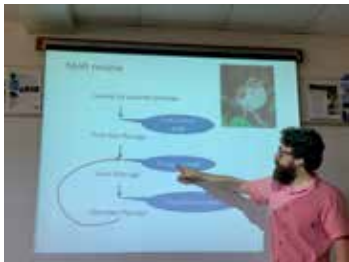
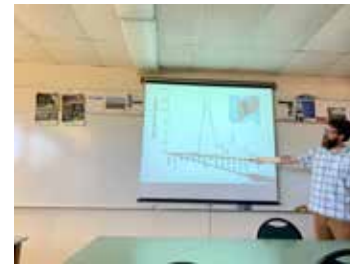
Scoop out one of your eyes 5 years from now and
do the same with the other eye 5 years later.

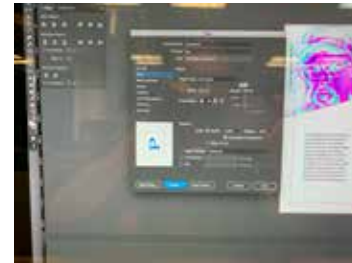
T.Kosugi

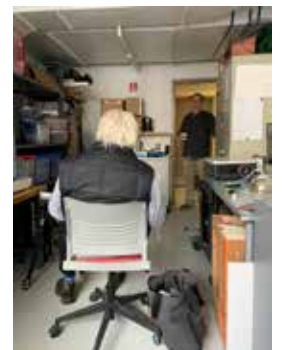
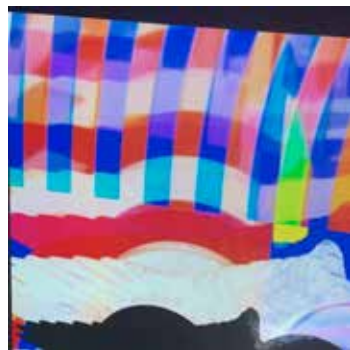


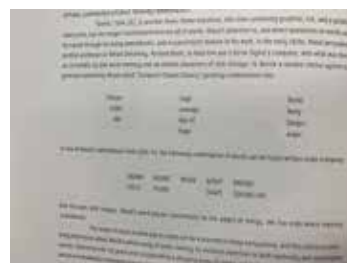


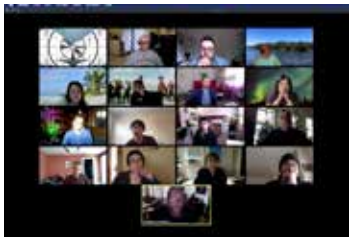
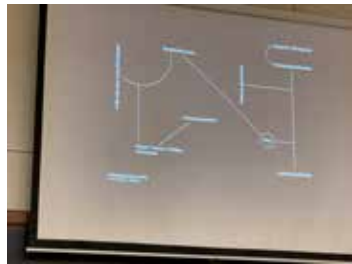














Tools

Tools

My appetite for tools and “talking shop” seemingly knows no bounds. I have an endless enthusiasm for learning and using new gear—from both a technical and artistic standpoint. Often I have as much interest in finding out what a particular tool is capable of as I do in making new work.

I enjoy cataloging the possibilities found when using a tool in isolation—how it can be effectively used, how it can be undermined and “misused.”

The same questions become reinvigorated when asked again, but this time with multiple tools used collectively, in collaboration, in conflict, and in cahoots with other tools.

The more tools in use at once, the more varied the resultant phenomenon experienced might be.

My artistic practice is very much about my collaboration with tools to explore and document phenomenon encountered during live, real-time interactions.

What follows are a list of tools used during my MFA and a collection of related images.

“Large piles of fine electronic equipment do not necessarily have anything to do with music.”

– Max Neuhaus

Type	Tool Maker	Tool	Description	Qty
Eurorack audio module	4ms Company	QCD	Quad voltage controlled Clock multiplier/divider	1
	4ms Company	QCD Expander	QCD Expander	1
	4ms Company	Quad Pingable LFO	QPLFO four pingable tri/ramp/saw LFOs	1
	4ms Company	SISM	CV or audio attenuation, inverting, and shifting (DC offset), mixer	1
	ADDAC System	ADDAC207	Quad Intuitive Quantizer	1
	ALM Busy Circuits	ALM017 - Pamela's NEW Workout	Advanced Clock and Waves	1
	Doepfer	A-132-2	Quad VCA	1
	Doepfer	A-143-9	Voltage Controlled Quadrature LFO / VCO	1
	Doepfer	A-151	Quad Sequential Switch	1
	Doepfer	A-196	Phase Locked Loop	1
	Doepfer	A-118	Noise/Random	1
	Doepfer	A-138a	Linear mixer	1
	ERD	ERD/ERD vampiric edition	Earth Return Distortion	1
	ERD	ERD/SIR	Susceptible, Infected, Recovered viral computation unit	1
	ERD	ERD/ERD	Earth Return Distortion	1
	ERD	ERD/y	VC Geiger counter and radioactive random voltage source.	1
	ERD	ERD/SIR re-issue (white)	Susceptible, Infected, Recovered viral computation unit	1
	ERD	ERD/WORM	Wormed speech synthesis	1
	ERD	ERD/LICHT	Light to audio/CV	1
	ERD	ERD/BREATH	VC heat and smoke	1
	Erogenous Tones	BLIP	RADAR Expander	1
	Erogenous Tones	RADAR	8 Channel AD/AR LFO Envelope Generator	1
	Erogenous Tones	LEVIT8	8x Attenuator/Gain/Invert/DC-Offset/Mixer	1
	Erogenous Tones	VC8	Octal Linear VCA	1
	Erthenvar	Patch Chord v3	25 Oscillator Controlled Oscillators	1
	Expert Sleepers	ES-8	USB Audio/CV Interface	1
	Genki Instruments	Wavefront	Wavering to CV converter	2
	Industrial Music Electronics	Piston Honda mkII	Wavetable Oscillator	1
	Instruō	SCION	Biometric feedback to CV module	1
	Intellijel	μJack	Headphone amp and stereo 1/4" outs	1
	Intellijel	Dubmix Mini Expander	VC Expander	1
	Intellijel	Dr. Octature II	LP filter with 8 phase-related outs / VCO / VCLFO	1
	Intellijel	Dubmix	4 channel voltage controlled stereo mixer	1
	Intellijel	Dubmix Aux Expander	Aux send expander	1
	Laurentide SynthWorks	VG2	Dual Passive Low-Pass Vactrol Gate	1
	Make Noise	Function	Function generator	1
	Make Noise	MATHS	Function generator	3
	Make Noise	Wogglebug	Random voltage generator	1
	Make Noise	QMMG	Quad Multimode Gate (Vactrol LPG)	1
	Make Noise	Morphagene	Stereo tape and microsound module	1
	Make Noise	Richter Wogglebug	Complex Random Voltage system	1

Type	Tool Maker	Tool	Description	Qty
Eurorack audio module	Make Noise	Erbe-Verb	DSP Reverb	1
	Make Noise	Pressure Points	Touch Controller / Manual Sequencer	3
	Make Noise	Brains	Pressure Points Sequence Expander	2
	Make Noise	Echophon	Pitch-shifting echo by SoundHack	1
	Make Noise	Telharmonic	Additive Synthesis Module	1
	Make Noise	Rene	Cartesian Sequence	2
	Make Noise	DPO	Complex waveform generator/Dual Oscillator	1
	Malekko Heavy Industry	Richter NoiseRing	Analog Data Resonator Module	1
	Malekko Heavy Industry	Borg 1	Low Pass Gate & Resonant Filter	1
	Metasonix	R-54 mk2	Tube-based triode-pentode in Wien-bridge circuit for VCO/VCF functions	1
	Metasonix	R-60 Midi-CV interface	Self-Tuning Midi to CV	1
	MFB	SEQ-02	CV / Gate Sequencer	1
	Modcan	Quad LFO	Four independent LFOs	1
	Modcan	Dual Delay	Dual Delay	1
	Mordax	DATA	Four channel oscilloscope	1
	Music Thing Modular	Turing Machine Mk II	Random looping sequencer module	1
	Music Thing Modular	Radio Music	Virtual Radio Playback (Sample Player)	1
	Music Thing Modular	Chord Organ	Chord synthesis	1
	Music Thing Modular	Volts	Turing Machine 5-bit expander	1
	Music Thing Modular	Vactrol Mixer	Turing Machine stereo expander	1
	Music Thing Modular	Spring	Spring tank reverb	1
	Music Thing Modular	Spring	Digital Spring reverb emulator	1
	Music Thing Modular	Pulses Mk II	Turing Machine Gate Expander	1
	Music Thing Modular	Voltages	Turing Machine clock expander	1
	Music Thing Modular	Mikrophonie	Contact Mic	1
	Music Thing Modular	Magnetophon	Mono cassette head / NAB equalized amplifier circuit	1
	Mutable instruments	Rings	Resonator	1
	Mutable instruments	Links	Routing / utility module	1
	Mutable instruments	Elements	Modal synthesizer	1
	Mutable instruments	Clouds	Texture synthesizer	1
	Mutable instruments	Peaks	Dual trigger to signal converter	2
	Mutable instruments	Kinks	Analog CV mangling utilities	1
	Mutable instruments	Shades	Mixing / offset utility	2
	Mutable instruments	Branches	Dual Bernoulli gate	1
	Mutable instruments	Frames	Keyframer/mixer	1
	Mutable instruments	Warps	Meta-Modulator	1
	Mystic Circuits	ANA	Analog logic / CV arithmetics	1
	Nonlinearcircuits	Numberwang	Gate generator	1
	Nonlinearcircuits	Wangernumb	PLL/VCO/Divider/Random	1
	Nonlinearcircuits	Triple Sloth	6x slow chaotic modulation	1
	Plan B	Model 15	Complex VCO	1

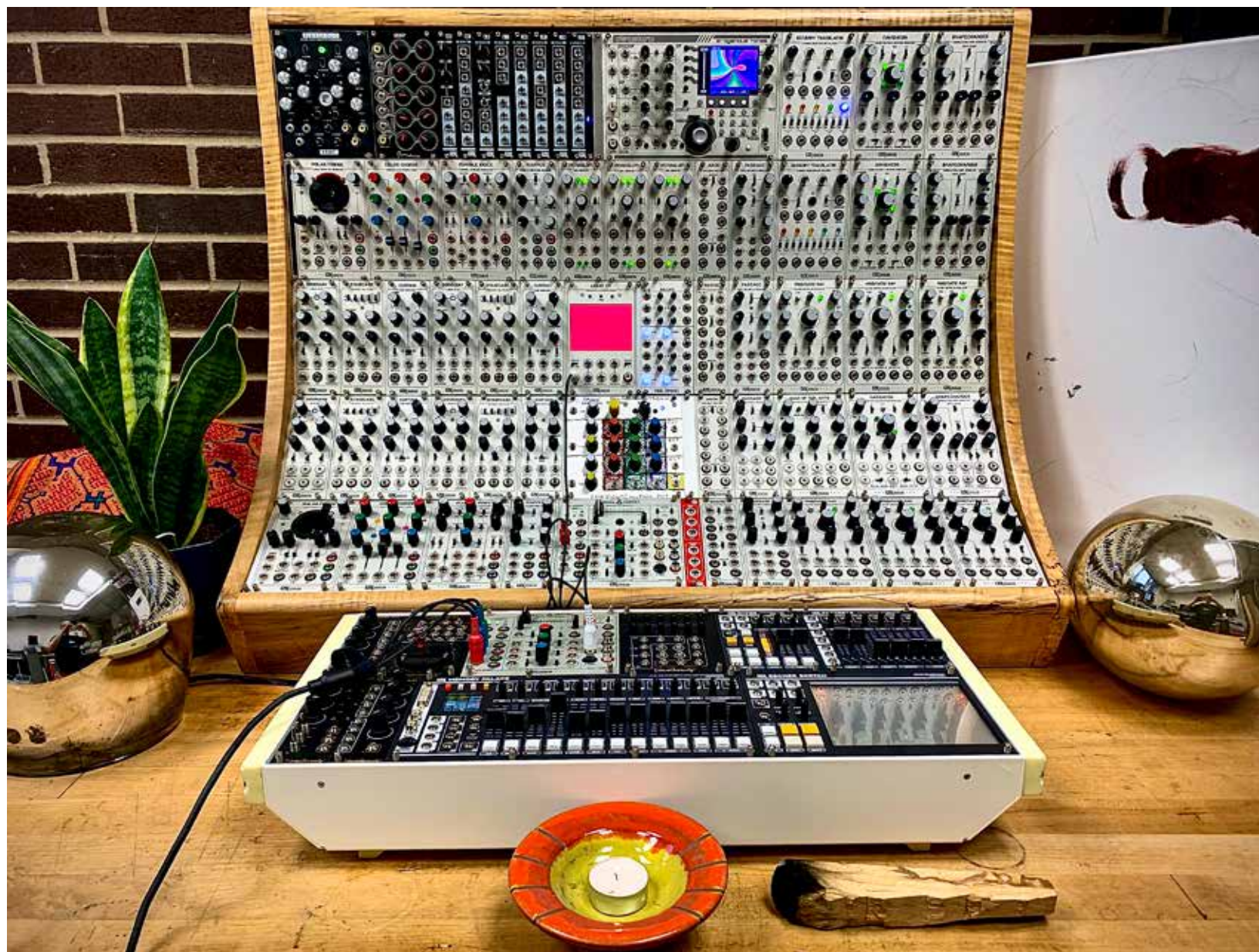
Type	Tool Maker	Tool	Description	Qty
Eurorack audio module	Random*Source	Serge Stereo Mixer	2 Channel stereo mixer with Aux In	1
	Random*Source	Serge Wave Multipliers (VCM)	Wave Multipliers	1
	Random*Source	Serge RING	Ring modulator	1
	Random*Source	Serge Variable Slope VCF	Variable Slope filter	1
	Random*Source	Serge New Timbral Oscillator (NTO)	Analog oscillator	1
	Random*Source	Serge NCOM	Divide by N Comparator (÷NCOM)	1
	Random*Source	Serge Resonant Equalizer (EQ)	Ten-band resonant filter	1
	Random*Source	Serge Variable Q VCF	Variable Resonance VCF	1
	Random*Source	Serge Triple+ Waveshaper	Wavefolder	1
	Random*Source	Serge SSG	Smooth & Stepped Generator	1
	Random*Source	Serge DUSG MK2	Dual Universal Slope Generator	1
	Snazzy FX	Dreamboat	Dual Chaos Osc / Lfo	1
	Soundmachines	BI1 brainterface	Human Brain to Eurorack Interface	1
	Steady State Fate	Ultra-Random Analog	Random Source	1
	Steady State Fate	Positronic Transient Gate	Dual Vactrol cored Envelope Generator	1
	STG Soundlabs	Mankato Filter	8-phase output 4-pole filter	1
	STG Soundlabs	Envelope Generator	Dual-output EG and LFO	1
	Subconscious Communications	Model 52 Vampire	LFO/VCO Pair	1
	Synthesis Technology	E370	Quad Morphing VCO	1
	Synthesis Technology	E440	Discrete OTA VCF	1
	Synthesis Technology	E102	Quad Temporal Shifter	1
	Thonk	AT-AT-AT	3 Channel Passive Attenuator	2
	Toppobrillo	Sport Modulator	Dual Lag and Hold Device	1
	Tubbutec	µTune	Microtonal Quantizer, Scale editor, MIDI interface	1
	WMD	Synchrodyne Expand	Synchrodyne Expander	1
	WMD	Synchrodyne	VCO + PLL + SC Filter	1
	Xaoc Devices	Zadar	1973 Quadruple Envelope Generator	1
Eurorack video module	BPMC	Fluxus Duo	Analog Glitch Video Effects Processor	1
	brownshoesonly	Video Grip	Joystick Module	1
	brownshoesonly	hexadirectional crossfader	Complex crossfader	1
	brownshoesonly	Triple Video LFO	3 discrete, skew LFOs	1
	brownshoesonly	SCANNER	4 input video rate interpolating scanner	1
	brownshoesonly	Triple Summing Amp	3 channel summing/attenuverting mixer	1
	brownshoesonly	Video Mix	Quad Video Attenuator Mixer	1
	brownshoesonly	Video Soup	VC VCA Mixer	1
	Dave Jones Design	MVIP	(Mini Video Image Processor)	1
	Dave Jones Design	O'Tool Plus	Oscilloscope and Audio tools	1
	Dave Jones Design	Core	Video Genlock Synchronizer	1
	Dave Jones Design	VO-1	Video Oscillator	3
	Dave Jones Design	OA-3	Output amp	1
	Dave Jones Design	VX-1	Jones to LZX / LZX to Jones converter	1

Type	Tool Maker	Tool	Description	Qty
Eurorack video module	Erogenous Tones	Structure	OpenGL GLSL Visual Generator Module	1
	Lone Vidiot Creations	SolaChromatron	Colorizing Video Solarizer	1
	LZX Industries	Video Logic	Boolean logic and inversion	1
	LZX Industries	Visual Cortex	Sync, input and output, mixing, compositing, waveform, shape generation	2
	LZX Industries	Navigator	Linear Position & Rotation Processor	3
	LZX Industries	Shapechanger	Linear Geometric Processor	3
	LZX Industries	Doorway	Linear Keyer	4
	LZX Industries	Sensory Translator	5 Channel Audio Envelope Follower	3
	LZX Industries	Mapper	Polar-to-Cartesian Colorizer	2
	LZX Industries	Passage	Triple Arithmetic Processor	4
	LZX Industries	Prismatic Ray	Voltage Controlled Oscillator	6
	LZX Industries	Cadet I Sync Generator	NTSC/PAL sync generator for video synthesis systems	1
	LZX Industries	Cadet IV Dual Ramp Generator	Dual Waveform Generator	1
	LZX Industries	Cyclops	Laser Display Interface	1
	LZX Industries	Staircase	Frequency Multiplier	4
	LZX Industries	Color Chords	Additive Layer Priority Mixer	3
	LZX Industries	Curtain	Edge Processor	4
	LZX Industries	Bridge	Multiple, fader, mixer, inversion	4
	LZX Industries	Liquid TV	Video Display & Preview Driver	1
	LZX Industries	War of the Ants	Zener diode avalanche noise generator	1
	LZX Industries	Marble Index	3 Channel Alpha RGB Compositor	3
	LZX Industries	Polar Fringe	Linear Chroma Key Generator	2
	LZX Industries	Pendulum	Dual Animator	3
	LZX Industries	Arch	Nonlinear Functions	2
	LZX Industries	Castle 000 ADC	Analog to Digital Converter	1
	LZX Industries	Castle 001 DAC	Digital to Analog Converter	1
	LZX Industries	Castle 010 Clock VCO	Clock VCO	1
	LZX Industries	Castle 011 Shift Register	Shift Register	1
	LZX Industries	Castle 100 Multi Gate	Multi-Logic Gate	1
	LZX Industries	Castle 101 Quad Gate	Quad Gate	1
	LZX Industries	Castle 110 Counter	Counter	1
	LZX Industries	Castle 111 D Flip Flops	D Flip Flops	1
	LZX Industries	Memory Palace	32-bit ARGB Frame Store & Digital Video Effects Processor	1
	LZX Industries	Escher Sketch	Stylus Pad Controller	1
	LZX Industries	Diver	Waveform Visualizer	1
	LZX Industries	Fortress	3-Bit Computational Graphics System	1
	LZX Industries	Topogram	Linear Sequential Key Generator	1
	Malekko Heavy Industry	AD/LFO-V	6 envelopes and low frequency oscillators	1
	Reverse Landfill	Triple Function Generator	Triple Sandin Function Generator / 3 channel video colorizer / shaper	2

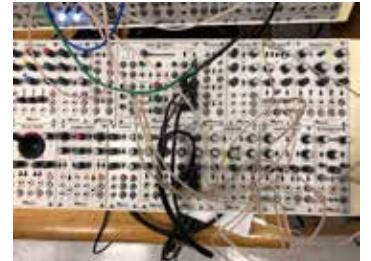
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Audio Interface	Universal Audio	Apollo x8	Thunderbolt recording interface/preamp	1
	Universal Audio	Apollo Twin MK II (Quad)	Thunderbolt recording interface/preamp	1
	Universal Audio	UAD2 Satellite (Quad)	Thunderbolt DSP	1
Camera	Canon	HV20	HDV Video Camera	2
	Canon	EOS 5D Mark II	DSLR	1
	Ikegami	ICD-48	Digital B/W camera	1
	Sony	DCR-TRV310	Digital8 video camera	1
	CrazyFire	HD-SDI 1080P	CCTV Mini Camera 2.8-12mm Manual Varifocal Lens	1
	Panasonic	HC-VX981K	4K Ultra HD Video Camera Camcorder	1
Computer	Apple	Mac Pro (Late 2013)	macOS Mojave 10.14.6	2
	Apple	MacBook Pro Retina 2012	macOS Mojave 10.14.6	1
	Apple	MacBook Pro Retina 2015	macOS Mojave 10.14.6	1
	Apple	iPhone XS Max	Camera/Recorder	1
	Apple	iPad 6th Gen	Tablet computer	1
Converter	Blackmagicdesign	Mini Converter SDI to Analog	3G-SDI converter	1
	Blackmagicdesign	Mini Converter Analog to SDI	3G-SDI converter	2
	Blackmagicdesign	MD-HX	HDMI/SDI Cross Converter	3
	Blackmagicdesign	Mini Converter UpDownCross	Video standards converter	1
Copystand	Bencher	Copymate II	Fluorescent copystand	1
Drum Machine	Roland	TR-909	Drum machine	1
	Roland	TR-707	Drum machine	1
DVD Player	Samsung	DVD-VR375	DVD recorder & VCR	1
Effect Pedal	Eventide	H9	Harmonizer Effects Pedal	1
Electric Piano	Fender	Rhodes	73 Suitcase Electric Piano	1
Headphones	Audio-Technica	ATH-M50xDG	Studio Monitor Headphones	1
	Audio-Technica	ATH-M40x	Studio Monitor Headphones	1
	Sennheiser	HD25-1 II	Closed-Back Headphones	1
ina	GRM Tools	GRM Tools 3.7.4	Electroacoustic audio tools	1
Laser	Laser Show System	RGB Laser	CV controlled RGB laser	1
Lens	Canon	70-80mm	Lens	1
Microphone	Audio-Technica	DR-140	Cardioid Dynamic Vocal Mic	1
	DPA	4060-BM	Frequency matched stereo pair of 4060-BM omnidirectional microphones	1
	JrF	coil pick-ups	Stereo pair	1
	JrF	c-series contact microphones	Stereo pair	1
	JrF	d-series hydrophones	Stereo pair	1
	Sennheiser	MKH 20-P48	Omni-directional RF condenser microphone	1
	Sennheiser	Ambeo Headset	Binaural Recording Headphones	1
	Telinga	Pro Universal MK2 Parabola	22" clear parabolic dish	1
	Ableton	Push 2	Pad Controller and Control Surface for Ableton Live	1
	DJ TechTools	Midi Fighter 3D	Motion tracking of tilt, pan, and rotation, accelerometer data to midi	1
	DJ TechTools	Midi Fighter Twister	MIDI controller	1

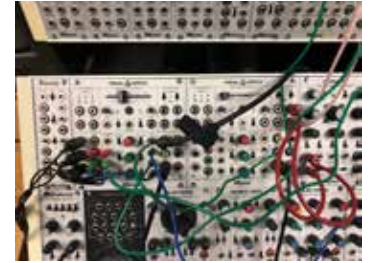
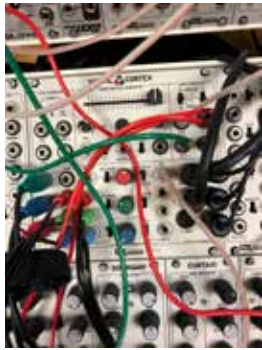
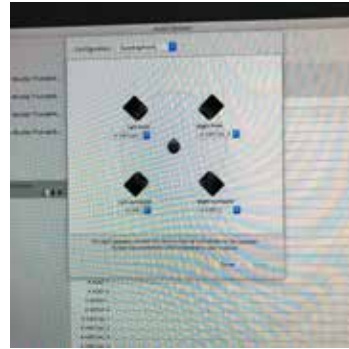
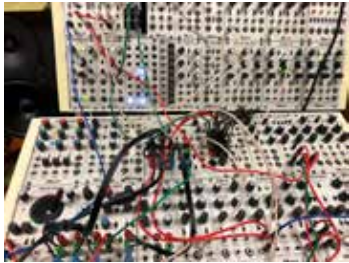
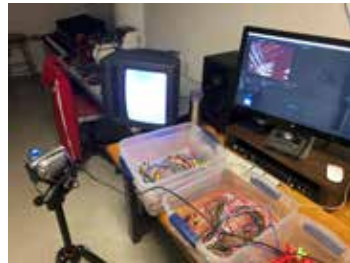
Type	Tool Maker	Tool	Description	Qty
MIDI Controller	Genki Instruments	Wave	Bluetooth/CV ring to control sound with motion	2
	KOMA Elektronik	Kommander	Dual infrared X-Y motion controller	1
	Ultraleap	Leap Motion Controller	Optical hand tracking module	1
Mixer	Panasonic	WJ-AVE5	Digital AV Mixer	1
	Pioneer	DVD-V7400	DVD player	6
	Roland	V-4	4-channel Video Mixer	1
	Videonics	MXProDV	Digital video mixer	1
	Panasonic	WJ-MX50	Video Mixer	1
Monitor	Sony	PVM-2950Q	29" color monitor	1
	Tektronix	620	CRT based X-Y monitor	1
	Evil Mad Scientist	AxiDraw SE/A3	X/Y plotter	1
Plotter	BENQ	W1100	DLP video projector	1
Projector	Sound Devices	702	Portable Digital Audio Recorder	1
Recorder	Tascam	Portastudio 424	Cassette four track audio recorder	1
Sampler	Akai	MPC2000XL	MIDI Production Center & Sampler	1
	Ableton	Live 10	Digital audio workstation	1
	Adobe	Creative Cloud Suite	Creative Cloud	1
Software	Apogee	MetaRecorder	Audio recording	1
	Audacity	Audacity 2	Digital audio workstation	1
	Blackmagicdesign	Desktop Video 11.5.1	Capture and playback	1
	Cockos	Reaper 6	Digital audio workstation	1
	Cycling ,74	Max/MSP/Jitter 8	Visual programming language	1
	Derivative	TouchDesigner	Node based visual programming language	1
	EboStudio	EboSuite	Audio and visual production suite	1
	garageCube	MadMapper 3.7	Video and light mapping	1
	Genki Instruments	Softwave	Mapping software for Wave ring	1
	Kris Collins	Decim8	Photographic digital data-mashing	1
	Lightricks Ltd	Enlight Photofox	Photo Effects & Filters Studio	1
	Michael Klingbeil	SPEAR 0.8.0	Sinusoidal Partial Editing Analysis and Resynthesis	1
	Michel Rouzic	Photosounder 1.10.1	Image-based sound editor/synthesizer/processor	1
	Morpholio	Trace	CAD	1
	Pixite Inc	Matter	3D effects	1
	Pixite Inc	Tangent	Geometric shape generator	1
	Rainbow	H6X8 8-48mm	TV Zoom lens	1
	Rasmus Ekman	Coagula	Industrial Strength Color-Note Organ	1
	Rasmus Ekman	GranuLab	Granular synthesizer	1
	Roxio	Toast 11 Titanium	DVD authoring, disc burning	1
	Samer Azzam	ProCam 7	Manual Camera + RAW	1
	Savage	Procreate	Digital illustration	1
	SIGMASIX	Syphoner 1.4	Syphon video interface	1

Type	Tool Maker	Tool	Description	Qty
Software	Signal Culture	Frame Buffer	Infinitely repeat frames within keyed areas using realtime video processing	1
	Signal Culture	Maelstrom	Realtime keying and pixel sorting within digital feedback processing	1
	Signal Culture	SSSScan	Realtime buffered slitscan	1
	Signal Culture	Re:Trace	Map and redraw realtime video into new pixel geometries in 3D space	1
	Signal Culture	V-Mass	Map video to 3D models and morph in realtime	1
	Signal Culture	Interstream	Realtime Datamoshing engine for live and pre-recorded sources	1
	Signal Culture	Signals	Control voltage style manipulation for MIDI and OSC	1
	Signal Culture	Video Mixer	Realtime crossfade, keyer and composite mixer for Syphon enabled apps	1
	Signal Culture	Weaver	Interweave textures across multiple video luminance maps	1
	Squared 5	MPEG Streamclip	Video converter, player, editor	1
	Tayasui	Sketches Pro	Digital illustration	1
	TECHLIFE	ScreenCaptureSyphon 1.26	Syphon sharing	1
	TopHatch	Concepts	Digital illustration	1
	VIDVOX	Black Syphon r4	Send and receive video streams to and from Blackmagic Design	1
	VIDVOX	Syphon Recorder 18	Record video in realtime from any Syphon-enabled application	1
	Zeal	VIZZable2	Video manipulation and performance	1
Speakers	Mackie	HR824	Stereo Studio Monitors	1
Synchronizer	Dave Jones Design	DVDplay-6N	DVD player synchronizer	1
Synthesizer	Clavia	Nord Modular	Virtual modular DSP synthesizer	1
	Clavia	Nord Modular G2X	Virtual modular DSP synthesizer	1
	Korg	Poly 800	8-Voice hybrid polyphonic synthesizer	1
	Oberheim	Two Voice Pro	Analogue Synthesizer	1
	Oberheim	Matrix 6	6-Voice hybrid polyphonic synthesizer	1
Video Interface	Roland	Alpha Juno 2	6-Voice analog polyphonic synthesizer	1
	Moog	Werkstatt-Ø1	Analog synthesizer	1
	Blackmagicedesign	Intensity Shuttle	Thunderbolt Video Data Transfer	2

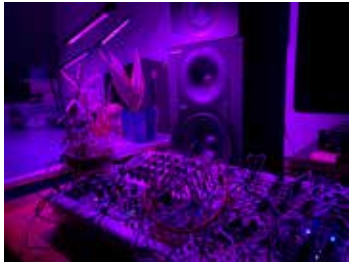


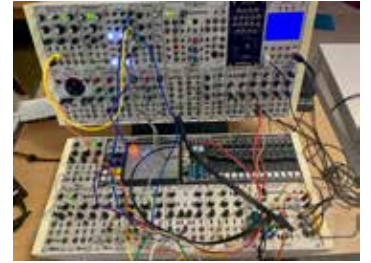
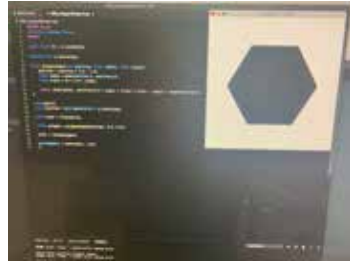
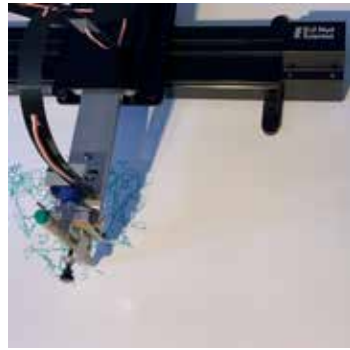
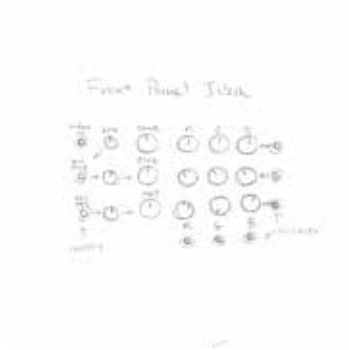
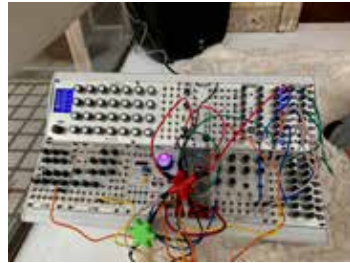
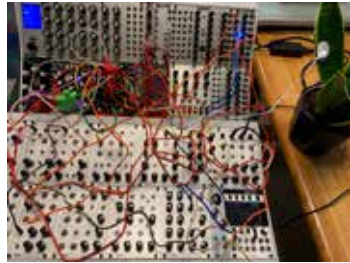
Video synthesizer in Harder Hall studio, 2019



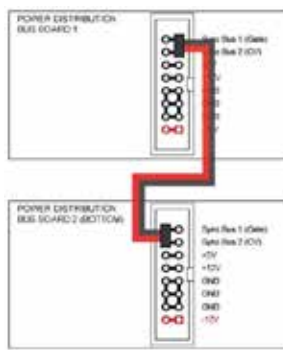














If you can afford a truck,
you can afford a Synthesizer



If you can afford a Tesla Cybertruck,
you can afford a video synthesizer



If your company can afford a pick-up,
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