

# Avant-Garde Glitch

*Red Noise, Purple Haze, Black Box*

## I. GLITCH AND NOISE

What does it say about the present that our visual media actively mobilize so much multivalent dissonance in the form of polychromatic noise and digital artifacts? These are not the classic principles of visual communication—optical precision, linear perspective, and proportional balance—but fragments of sensory chaos otherwise pushed aside because they offer nothing but raw and immediate affect. If such acts of anti-communication are political or pedagogical, then what kinds of things do glitch, noise, and colored distortion mark in our historical moment, and why would a creative producer be driven to use state-of-the-art technologies only to negate their capacity to reproduce verisimilitude?

Glitch and noise are well established techniques in the avant-garde. Throughout the twentieth century, scratching, desaturation, illegibility, and broken materials were used to mark something askew in psychic and social registers. Such anti-communicative strategies were quickly rationalized into mainstream cultural styles. This was the fate of the avant-garde from Dada and Surrealism, to the experimental cinema of the 1960s, through glitch art today. What has not yet been given proper scholarly attention, however, is the way in which twenty-first century acts of visual discord symbolize broader economic, psychic, and environmental failures, generating a registry of unrequited longing in the age of information. This chapter considers an archaeology of glitch art precursors in key selections from the twentieth-century avant-gardes.

As noted in the Introduction, approaches to error and noise are treated differently in industry and Western philosophy than they are in the creative worlds of art and design. Chapter 1 provided a philosophical and cultural history of error.

This chapter examines the opposite: its brazen acceptance, and in some cases, active pursuit. This is especially true in the avant-garde, where error is required to maintain the field's expansion through time. As John Roberts notes, art must continually remake itself by transgressing its own preestablished rules and conventions.<sup>1</sup> Accordingly, in what I here call "glitch art history," I employ the lens of "abstraction" to connect contemporary gestures of anti-communication to a longer history of the avant-garde. Defined as the defamiliarization of immediately recognizable things, forms, or figures, abstraction employs fragments of color and line to undermine expectations of accurately rendered visual forms. Pioneer abstract artists include Wassily Kandinsky through Rothko and Jackson Pollock. In a sense, all modern abstraction could be construed as proto-glitch, and to some extent this is precisely the chapter's thesis. Both modern abstraction and glitch art involve the defamiliarization of normative viewing experiences. But to what degree is total abstraction (Kandinsky, Rothko, Pollock, Mondrian) helpful in glitch art's challenges to media culture? Not much, I argue when I return to this question in chapters 4 and 5. For now, the chapter considers this legacy through a genealogy of medium specific abstractions. I consider how noisy, low-resolution or, "poor images," as Hito Steyerl terms them,<sup>2</sup> have a natural tendency to "abstraction," therein aligning contemporary glitch with visual art's wider history.

Section I, "Red Noise," addresses abstraction and fragmentation in early twentieth century art, including Arnold Schoenberg's *The Red Gaze* (1910) and Fernand Léger's neglected machine aesthetics in his and Dudley Murphy's *Ballet Mécanique* (1924). Section II, "Purple Haze," addresses the lo-fi hum of electronic media saturating the 1960s and early 1970s. If mechanical art invokes red-hot metaphors of iron, steel, and the vibrant rhythms of the industrial age, electronic art lands us in a purple haze of cool synthetics. Section III, "Black Boxes," positions glitch art in the computer age, where glitches become less visible as code, but increasingly insidious, often only detected by way of the spectral colors glitch artists use to bring them forth on screen.<sup>3</sup> In sum, the chapter offers an aesthetic critique and material archaeology of glitch art that moves across media genres. The interdisciplinary mapping of glitch aesthetics here in no way satisfies the disciplinary demands of art history, just as chapter 1 makes no such claims vis-à-vis traditional philosophy.<sup>4</sup>

## II. RED NOISE

Red is the fiercest of the twelve hues in the standard color circle. In contrast to other colors, it hits the eye first and incites immediate, physiological responses hard-wired in our bodies through thousands of years of evolutionary biology.<sup>5</sup> In Western culture, red is associated with danger and fear, especially of the feminine; blood; murder; violence; and the explosive ecstasy of being. Red is also the most challenging color to reproduce in print and electronic form. Due to its intensity, it easily leaks or "bleeds" across borders and edges. As a result, red pigments and

lighting require higher levels of engineering, making them costlier and more difficult to work with. This is also one of the reasons video tends to look more greenish. In science, red is affiliated with high frequencies, like infrared radiation or long-wave electromagnetic spectral energy. Long-wave light energy travels far, but cycles slowly, making it useful in devices from remote controls to military weapons ranging from lasers to automatic rifles.<sup>6</sup> The midcentury Canadian media theorist Marshall McLuhan describes “hot media” as a media technology that traveled outward to an audience in (what was then perceived to be) high definition, like radio, film, or the hustle and bustle of industrial life in the early modern city. The perceived “hotness” of these media, like an F-sharp, is ex-static and unequivocally red; aggressively pushing out from its material substrate towards a presumably more passive viewer or recipient. In music, red translates into “top” notes like F-sharp. I picture the sound of red like the cut of a rusty knife. All of the above figure in my concept of “red noise,” beginning with the edgy abstract art that emerged in Europe in the interwar period.

### The Red Gaze

Disruptive circumstances engender disruptive action. In Paul Virilio’s account, during World War I, “two men face off” at the mouth of the Somme river in northern France circa 1914. They are Georges Braque and Otto Dix, the “same two men who later brought us . . . the fractured collages of Cubism” and the broken tones of German expressionism.<sup>7</sup> By extending this correlation between war and expression, this section articulates how the quality of red noise corresponds with this moment of cultural breakdown.

Early twentieth-century expressionism aimed to reject both the harmonies of nineteenth-century impressionism and naturalism’s mimesis of nature, taking up instead a *discord* between expression and experience.<sup>8</sup> A prime example is Arnold Schoenberg’s *The Red Gaze* (1910), a close-up painting of a man’s face.<sup>9</sup> The side of the subject’s skull is blurred by browns and yellows that fade off into the background while hollowed-out, reddened eye cavities and yellow pupils convey a mix of horror and ghostliness. Thomas Harrison argues that the eyes, masked in haunted shadow, seem to be on the brink of disappearing as the pupils reflect illness and bloodshed, premonitory of the impending horrors of World War I. In contrast to classical painting, which attempts to resolve opposing tensions through higher unities and formal symbolism, *The Red Gaze*, like other works of its time, uses abstraction to articulate a state of perpetual struggle; a dynamic and irresolvable tension akin to red-hot noise. Harrison also suggests that the *Red Gaze* is a visualization of Schoenberg’s “emancipation of dissonance,” a term the composer proposes in his 1911 *Theory of Harmony*, denoting the *willful* disruption of harmonic order. If consonance is the pleasing resolution of clashing tones, dissonance, he argues, is the opposite: the willful disruption of harmonic order.<sup>10</sup> Consonance, for Schoenberg, avoids movement as it fails to “take up the search,” settling for



FIGURE 8. Otto Dix, *Kriegskrüppel* (*War Cripples*) (1920). According to Paul Virilio, Dix's troubled broken-line aesthetic reflects his World War I experience. © Estate of Otto Dix / SOCAN (2019).

what is already given and expected. In contrast, his theory of atonal composition proposes that changing melody and harmony into a formal language bereft of tonal resolution or (classical) consonance allows for sustained dissonance, that is, noise, in sonic or visual form. In *The Red Gaze*, this takes the form of blurred colors, indistinct shapes, hollowed-out and uncertain eyes, and a vacant subjectivity. In this way, Schoenberg's dissonance also speaks to a much broader fragmentation in modern life and subjectivity. The distressed red eyes, presumed to have witnessed a "battle-torn world," personify a cultural condition of atonal, dissonant being, visualized through a "death-like vacuity."<sup>11</sup>

Beyond war, the rapidly changing conditions of modernity introduced unforeseen forms of noise and confusion on the canvas. This is illustrated throughout early modern painting, and most notably, the work of Die Brücke and expressionists Richard Gerstl, Oskar Kokoschka, Egon Schiele, and Carlo Michelstaedter. Edvard Munch's *The Scream* (1893) has personified modern psychosis for over a century.<sup>12</sup> Wassily Kandinsky's work offers a milder form of visual noise, meticulously depicting modernity's chaos and fragmentations through soft colors and gentle abstractions. After attending one of Schoenberg's concerts in 1911, Kandinsky was inspired to break from the representative constrictions of visual art and "liberate" the signifying possibilities of painting from the depiction of the so-called objective world.<sup>13</sup> Despite associations with Gestalt, Kandinsky deploys line and color



FIGURE 9. Arnold Schoenberg, *Der rote Blick* (*The Red Gaze*) (1910). Close-up of a man's face with red, hollow eye cavities. The sides of his skull fade into an ambiguous background. © Estate of Arnold Schoenberg / SOCAN (2019).

in “atonal” ways, creating jagged, linear vectors that cut across rounded shapes, or alternatively, patches of primary and secondary colors combined in ways formerly considered disharmonious. Kandinsky describes his approach as a series of “clashing discords, loss of equilibrium, principles overthrown, unexpected drumbeats, great questionings, apparently purposeless strivings, stress and longing . . . opposites and contradictions.”<sup>14</sup> He juxtaposes shape and color to reflect a fundamental gap in his culture’s ontology, a red-hot break between subject and object, spirit and matter.<sup>15</sup> What Schoenberg did for music, Kandinsky did for painting.

Other noteworthy examples of red-hot visual noise in modern painting and sculpture include Giacomo Balla’s *Dynamism of a Dog on Leash* (1912); Carlo Carrà’s *The Red Horsemen* (1913); Juan Gris’s *Man in a Café* (1912); Umberto Boccioni’s sculpture *Unique Forms of Continuity* (1913); and Marcel Duchamp’s *Nude Descending a Staircase No. 2* (1912) and *The Bride Stripped Bare by Her Bachelors, Even* (1915–23), because of the prominence of broken glass in its final state. All of these works illustrate dissonance and visual noise by deliberately using abstraction to depict a “great inner unrest” in the zeitgeist or, as Wilhelm Worringer puts it, “an awareness of temporality, contingency, and . . . state of abject terror.”<sup>16</sup> Their gestures mark literal breakage and foreground it on the canvas, resulting in a double breakage: a literal rupture and noisy abstraction seen by a viewer, coupled with an uprooting of aesthetic tradition, where, as noted, the deliberate use of misalignments and “incorrect” renderings do not result in actual failure, but rather, in the discipline’s longevity.

### *The Art of Noise*

As noted, the modern spirit of fragmentation was largely inspired by music. The futurists celebrated dissonance and atonal aesthetics in their “Art of Noises.” The Italian futurist Luigi Russolo actively engaged noise as a kind of music, utilizing his “intonarumori” (noise intonator) machines and accompanying 1913 manifesto, *The Art of Noises*, in which he argued, noise not only counts as an art form but is in fact aesthetically pleasing.<sup>17</sup> “Let’s walk together through a great modern capital . . . we will vary the pleasures of our sensibilities by distinguishing among the gurglings of water, air and gas inside metallic pipes, the rumblings and rattlings of engines breathing with obvious animal spirits, the rising and falling of pistons, the stridency of mechanical saws,” Russolo wrote to F. T. Marinetti in 1909.<sup>18</sup>

Russolo’s desire to orchestrate the eccentric sounds of military and industrial life characterize this avant-garde’s heated zest, complemented by the punchy, abrasive rhythm of the machines he used. As I argued in chapter 1, noise has always been fundamental to life; it is simply that the kind and quality of it changes over time, retroactively constituting what we call a culture’s aesthetic. Schoenberg and his contemporaries recognized this in mechanical fragmentation and introduced themes of dissonance and declension in visual art and music. Russolo and his colleagues did the same using industrial-era machines, as did Fernand Léger in cinema.

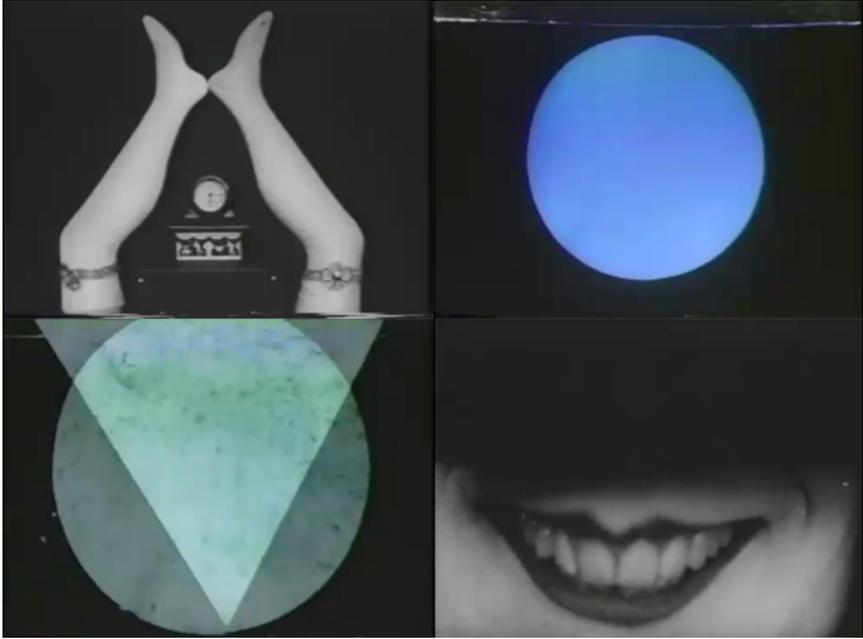


FIGURE 10. Fernand Léger and Dudley Murphy, *Ballet Mécanique* (1924). 35mm film, black and white, silent, 12 minutes. Stills. © Estate of Fernand Léger / SOCAN (2019)

### *Machine Aesthetics as Proto-Glitch*

Machine-era fragmentation could not be more central to cinematic aesthetics. Not only is cinema itself a fragmented technology of rapidly moving twenty-four images per second, it also engenders a new set of distorted visual techniques ranging from scratching, burning, dodging, overexposure, and other uncommon and, at first, non-commercially viable “noisy” effects. Perhaps the most effective technique of fragmentation is montage. Because we are largely desensitized to montage cuts today, it is difficult to imagine what it must have been like to watch the eloquent but radical montage sequences in an original screening of *Battleship Potemkin*. For this reason, turning to a non-narrative, experimental example of early montage helps us to re-render the disjunctive power of early cinematic perception back into the foreground. Many examples could be used to illustrate how montage figured as a proto-glitch aesthetic. Fernand Léger and Dudley Murphy’s nineteen-minute avant-garde film *Ballet Mécanique* (1924) offers a particularly interesting case, not only of montage, abstraction, and compositing but also, a stylized human-machine aesthetic.<sup>19</sup>

Created with the composer George Antheil, visual artist Man Ray, and co-directed with Dudley Murphy, Léger’s *Ballet Mécanique* consists of a series of black

and white images of machine parts mixed with close-ups of a woman's lipstick, decapitated legs, cars, carnival rides, pistons, mass-produced crockery, and other industrial phenomena, animated into a chatty, upbeat montage. The film begins with an allusion to classicism (the ballet, a young—non-decapitated—lady in a swing), but the pace is quickly overtaken by punchy cuts, resulting in a dynamic rhythm—an “innervation,” as Walter Benjamin terms it—between viewer and medium. The montage style is far from subtle or nostalgic; a hot fragmentation imbued with a machine-age optimism. If classical ballet and portraiture were concerned with preserving the preciousness of organic forms and lines, the machine-age aesthetic devours it with a voracious appetite for speed.<sup>20</sup>

Among other works of its time, *Ballet Mécanique* introduced new techniques of discord and broken visuals, rooted in abstraction, compositing, and accelerated editing and montage. The stuttering, frenetic language, speaks to the red-hot changes of early to mid-twentieth-century life wherein a new kind of beauty was to be found in the “convulsiveness” of the industrial or, “not at all,” as surrealist André Breton put it in his pivotal novel *Nadja* (1928).<sup>21</sup> Mass fears of failure in the face of a new generation of machines, as discussed in chapter 1, were creatively reconceived as the gateway to the new century's aesthetic.

### *Junk Art*

Across the Atlantic, Jasper Johns and Ed Kienholz were fascinated by found objects, debris, and junk as the raw materials for creating visual noise. “Junk art” became popular in the 1950s and 1960s, especially in the New York School, exemplified by the American sculptor John Chamberlain, construed here as a proto-glitch artist insofar as he built his career by recycling trash into colorful sculptures. Chamberlain created his sculptures by crushing automobile body parts and then reconfiguring and repainting them into visual abstractions.<sup>22</sup> Noteworthy European precursors include the techno-assemblages developed by the Swiss sculptor Jean Tinguely, the cybernetic artist Nicolas Schöffer, and more recently, a whole host of “zombie media” artists and practitioners.<sup>23</sup> Tinguely, French American artist Arman (Armand Fernandez), and *affichiste* Jacques Villeglé incorporated urban debris into their art. In London, Gustav Metzger included destructive random noises and degraded machine objects.

“Auto-Destructive Art,” Metzger argued in his 1959 manifesto of the same name, is “a form of public art for industrial societies.” Despite its emphasis on breakdown, it is conceived of as a “total art,” unifying broader, disintegrative processes. His *Liquid Crystal Environment* (1965), for example, embodies this concept using heat-sensitive liquid crystals placed between glass slides and inserted into projectors. The slides are then rotated to create movement within the liquid and as the crystals heat up and cool down, their luminous colors shift accordingly. The abstract patterns produced in each slide are then projected onto screens in the

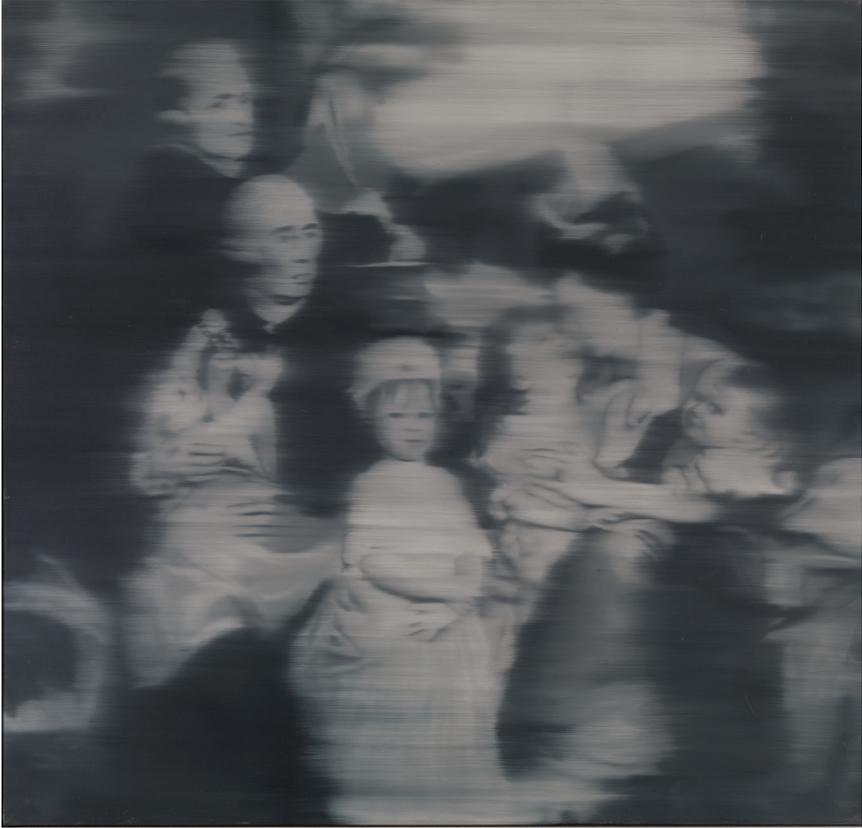


FIGURE 11. Gerhard Richter, *Familie nach Altem Meister (Family after Old Master)* (1965). © Gerhard Richter 2018.

exhibition space, coordinated by a computer program, highlighting the mirrored relationship between chaotic destruction and random regrowth. Metzger was also key to the Destruction in Art Symposium (DIAS) held in London in 1966, a conference that bolstered growing interest in aesthetic destruction and noise.<sup>24</sup>

German artist Gerhard Richter can also be viewed as a proto-glitch artist, though he did not work with hardware or broken machine parts. Richter's paintings often display such visual artifacts as blurs, overexposures, or high-contrast obfuscation. *Familie nach Altem Meister (Family after Old Master)*, 1965, for instance, alludes to traditional portraiture while obfuscating its depicted referent through a heavily blurred image and dulled "authorial" brush, a technique the artist is well known for. Imperfection, transience, and incompleteness, for Richter, are natural and given characteristics of memory and experience, and thus, his goal, according to the artist, is to make "everything equally important and equally



FIGURE 12. Bruce Conner, *Breakaway* (1966). 16mm film stills.

unimportant.”<sup>25</sup> Relative to the prevalence of blurs and glitches in contemporary media, his aesthetic may seem mundane but, fifty years prior, these ambiguous hazes eccentrically called attention to our always already mediated and imperfect acts of perception.<sup>26</sup>

#### *Postwar Glitch*

Experimental art and cinema thrived in the postwar era, much of it through the legacy of fragmentation and glitch charted above, albeit in a more conceptual fashion. Both Nam June Paik’s *Zen for Film* (1962–64) and Aldo Tambellini’s *Black Films* (1965–67) used clear leader as their “content.” The former’s *One for Violin Solo* (1962) also invoked noise and destruction as a violin was slowly lifted over the artist’s head, held still for a long time, and then crashed down on a table. George Maciunas’s *Fluxfilm No. 7: 10 Feet* (1966) projects ten feet of blank film, “with no camera” on the screen, and Andy Warhol, in his first use of film in 1963, intentionally allowed light to leak into some of the unprocessed film by not completely closing the viewfinder of his 16mm Bolex camera.<sup>27</sup> Generally speaking, this postwar expanded cinema prioritized techniques otherwise seen as industry or commercial failures: scratching, dying, hand painting, pure color fields, and especially, hyper-accelerated animations that challenge the viewer’s relationship to the medium.<sup>28</sup>

Drawing on the human-machine motif noted above, Bruce Conner's 16mm epic *Breakaway* (1966) presents an upbeat version of mechanized human-machine choreography, also in montage style. With music by Ed Cobb and dance and vocals by Toni Basil (Antonia Christina Basilotta), the five-minute film captures Basil's exuberant moves contained in a highly contrasted, small, dark space. Conner shot the film at single frame exposures as well as 8, 16, 24 and 36 frames per second, and then rhythmically interspersed sections of black leader with sections of Basil's jumps. The result is a frantic but celebratory embrace of cinematic movement, as a hybrid human-machine system. Two-and-a-half minutes through, the image and sound are reversed. The human spirit does not fall under the machine's weight and unexpected inversion, but rather grows refreshingly hotter and more vibrant. Like the above-noted examples, Conner's *Breakaway* uses the materiality of the medium to produce glitches and stutters in cinematic experience, often creating a sustained and irresolvable noise at the edges of this technology's human-machine capacities. Essentially, many avant-garde works could be cited as precursors to what has become the rapid pace of an MTV and now internet video aesthetic.<sup>29</sup> I have, however, only highlighted those that explicitly call attention to limits of the medium through either material disruption or destruction of viewer experience (the literal *and* psychological glitch).<sup>30</sup>

### III. A SEGUE THROUGH CONCEPTUAL BLUE

Claude Shannon's pioneering work on the relationship between signal and noise (see chapter 1) was increasingly popular among experimental artists and musicians after World War II. In music, his influence emerged in the experimental compositions of John Cage, Erik Satie, Edgard Varèse, Karlheinz Stockhausen, and Pierre Boulez (Boulez was also inspired by Russolo and Pierre Schaeffer's adoption of the latter's techniques), whose 1948 broadcast, "Concert of Noises," for example, consisted entirely of recordings of train whistles, spinning tops, pots and pans, canal boats, and percussion instruments. Schaeffer's work also helped pave the way for *Musique concrète*, a genre defined by its inclusion of multiple source materials, including synthetically produced electronic noise, found noise, and almost any nontraditional sonic form.<sup>31</sup>

The work of John Cage was largely informed by that of his teacher, Arnold Schoenberg, who, as noted above, systematically broke with harmony, melody, and the "teleological implications of tonality." Cage, born in Los Angeles in 1912, developed his own method of avoiding classical attributes and devoted a number of performance pieces to support the notion that noise exists in silence. By 1938, he turned to the principles of chance and randomness to explore the capacity for any and all noise in a sound environment to structure the "content" of a work, most famously translated in *4'33"* (1952–53).<sup>32</sup>

*4'33"* was composed for any instrument. It was first performed by David Tudor in 1953 in Woodstock, New York, where Tudor sat at the piano and did nothing

but acknowledge the beginning and end of the composition's 4 minutes and 33 seconds. At the end of the demarcated time, he closed the piano's lid. The "content" was the random noise and movements in the space, everything but typical sounds from a piano. The piece was inspired by Robert Rauschenberg's *White Paintings* (1951), created under an apprenticeship with the colorist Josef Albers.<sup>33</sup> The *Paintings* consist of seven large, white, oil-painted panels that act as "hyper-sensitive" mechanisms, absorbing and reflecting the surrounding light, dust, and shadows wherever they are installed. In this way, the pure white is "dirtied," not by gestural abstraction, but by the dust and shadows of the world that houses them, resulting in a series of paintings with constantly changing, marginally visible, content. This is also why Cage refers to Rauschenberg's blank white panels as "landing strips" that must await actualization by a spectator.<sup>34</sup>

The pieces by Cage and Rauschenberg both enact a dematerialization of authorial concepts, lending themselves to another register of failure: the pseudo-renunciation of the artist-genius's control of the creative process. By introducing randomness and chance, they seemingly relinquish personal touch and put the onus of the work on the viewer and the context of viewing. In this, we find evidence of this generation's exhaustion with the older artist-genius paradigm, and an interest instead in motifs in chance, error, and the aleatory noise of the computer age. John Roberts argues that postwar art is in many ways defined by this reversal of the conventional relationship between control and chaos; and errancy and truth, or simply, the failure of the myth of the artist as sole author of a work.

This new breed of conceptually minded, rational artists, drew on the structural logic of computer programming to redefine postwar artmaking as anonymous, desubjectified "research" into open "systems" and flexible "communication networks." Oddly, Roberts also argues that the best example of this is found in Jackson Pollock's paintings, which result from a seemingly arbitrary splattering of paint across the canvas. Pollock's genius, he maintains, was his avoidance of identification with the expressed self or any stable sign-making attributes. Through the "delirious signs" of his aleatory lines, he articulates a chaos that is both personal and anonymous, universal and indecipherable. An artist needed to be out of control to be in control, Roberts explains, or at least present the veneer of the former.<sup>35</sup> The same is the case, as we will see, with issues of control and chaos in digital glitch art. In sum, in the postwar era, there is a cooling down of red noise, pacified by a brave new world of level-headed analytic humans and machines.

#### IV. PURPLE HAZE

The disintegration of the historic avant-garde and myth of the genius artist occurred alongside the rise of mass advertising and eventually, the popularization of personal computers. As a result, the 1960s were colored by the lo-fi hum of electric guitars, color television, pastel colored cars, appliances, and other buzzing devices

set to the 60 Hz standard.<sup>36</sup> The piercing red F-sharp morphed into a cool B-flat. The new concept-driven artist, influenced by Cage and a new culture of computer programming, was only responsible for “setting up” a system, as Rauschenberg put it in 1965, and after that, “chance deals with the unexpected and the unplanned.” Roberts argues that this systematic destruction of nonpositivistic reason reflects Western capitalism’s progressive assimilation of modern art.<sup>37</sup> This may be true early on, as suggested above, but by the end of the 1960s, the avant-garde’s driving logic seems to have dissipated into an electro-psychedelic mysticism. In this section, I analyze the purple haze characteristic of glitch in this style of postwar experimental media art.

With the introduction of electronic audio synthesizers in the 1950s and 1960s, additional forms of sonic experimentation emerged through the work of pioneers like Reed Ghazala, considered the “father of circuit bending.” Ghazala observed how shorted-out amplifiers emitted a series of “synth” sounds, which he began to reproduce in his work. An iconic example is his short-circuiting of the *Speak & Spell* toy, rewired to bring about a disconcerting robotic voice.<sup>38</sup> Artists have since explored related sonic qualities by modulating everything from children’s electronic toys, to using existing equipment in unanticipated ways and building sound instruments from household items. Also in the 1960s, synthetic sounds were adopted in noise rock and linked to pop through guitar-based electronic distortion.<sup>39</sup>

Purple haze colored the culture’s aesthetic of noise by centering on two core effects: feedback and distortion. Both are connected to a noisy signal passing through a sound circuit. The former involves the back-coupling and perpetual rerouting of a signal through the same circuit and is one of the core principles of cybernetics established by Norbert Wiener, largely influential to Shannon (discussed in chapter 1). The second, distortion, involves small pick-ups on the guitar that react to the sound of an amplifier in what was at first a “distortion” of normative, clear sound but, in noise rock, quickly stylized as a trademark of the genre. One of the first deliberate uses of these effects can be traced back to Link Wray’s “Rumble” (1958), but ultimately, Torben Sangild argues, it was garage bands like The Kingsmen, The Kinks, The Who,<sup>40</sup> and, of course, master of purple haze, Jimi Hendrix who “constructed a whole catalogue” of virtuous noise effects through his “blues-inspired rock compositions.” Such techniques track the cultural moment when noise and fray were just that: noise, with no convention or established meaning. Today, such noise is merely cliché; definitive of the genre’s most standard aesthetic.<sup>41</sup>

Corresponding visual noise saturated Nam June Paik’s 1960s electro-cybernetic video art. Like Cage before him, Paik was heavily influenced by Schoenberg. After studying music, art, and history at the University of Tokyo in the 1950s, Paik wrote his thesis on Schoenberg and several years later, moved to New York to join the downtown avant-garde. Because I have discussed Paik’s work at length elsewhere,<sup>42</sup>

suffice it to note here that his style is marked by abstract, electronic glitches that consistently catch viewers off-guard. Classic examples include *Magnet TV* (1965), which consists of a cathode ray tube (CRT) television with a magnet on top. The magnet is powerful enough to draw and detract the high-speed electronic phosphors shooting through the electronic gun, actively deforming the “normal” broadcast image into colorful traces and abstract patterns.<sup>43</sup> *Magnet TV* is an example of visual abstraction void of signal or signification. Pure noise as pure medium.

Made in collaboration with Jud Yalkut,<sup>44</sup> Paik’s *Beatles Electroniques* (1966–69) involves the manipulation of pop icons and images from mainstream culture. In this three-minute piece, Paik and Yalkut use a magnet to disrupt the black-and-white video footage of a television broadcast of the Beatles’ *A Hard Day’s Night* (1964), produced during a series of experiments taping the monitor of a Sony videotape recorder. The accompanying soundtrack by Kenneth Lerner—originally called “Four Loops” because it derived from four electronically altered loops of Beatles’ sound material—complements the repetitively discordant abstractions. As black-and-white images of John Lennon and the Beatles were processed through numerous synthesizers, the figures and sounds were simultaneously engulfed in a cool blue ooze. Where Léger’s *Ballet* juxtaposed the human and machine in an upbeat, jazz-age rhythm, Paik’s electronic-era glitches imploded distinctions between the human and machine through infinite cybernetic feedback loops.

Two other pivotal, proto-glitch electronic artists are Steina and Woody Vasulka, who, like Paik, were the “first of a generation to ‘open the box.’” Their work explores the material noise of the video medium, sometimes in the images, at others times by literally “ripping apart pre-set commercial, manufactured media systems.”<sup>45</sup> Joan Jonas’s *Vertical Roll* (1972) and Mary Lucier’s *Dawn Burn* (1975) and *Bird’s Eye* (1978) offer three other examples. *Vertical Roll* is a video-performance piece including mirrors, masks, and the intentional offsetting of the vertical blanking signal on the analog video camera. Using a metal spoon to bang on the head of a microphone, Jonas uses sound and image to depict a misalignment between self and mediated subjectivity.<sup>46</sup> Mary Lucier’s *Dawn Burn* and *Bird’s Eye* provide empirical records of the distorted optical effects of light burned directly on the video camera’s “eye.” For the former, Lucier aimed the camera’s lens directly at the sun, burning the camera’s vidicon tube in real time and inscribing it with calligraphic abstractions of light. In *Bird’s Eye*, she aimed a laser directly at the camera lens, producing an analogous but visually distinct effect. The result is just over ten minutes of a single concentrated light, occasionally split and bent through various kinds of distortion. The rhythm is slow and soothing but, when coupled with a relatively high-pitched electronic noise running throughout the soundtrack, a tension is created between the seemingly alien perspective and a familiar noisy light.<sup>47</sup>

In sum, relative to the chatty red noise circa 1910, purple haze is cool and cognitively distant. Delivered through the nascent rhetoric of a “global village” and visionary theories of mediated cosmological connectivity, this avant-garde

witnessed one last burst of color, just in time for its obfuscation in the dark age of so-called transparent digital media.

## V. BLACK BOX BREAKDOWN

Now that digital computing has been around for over half a century, the postwar metaphor of the black box may seem outdated, especially in lieu of our prosaic candy-colored (1990s) and metallic-toned (2000s) computers. The trope is nonetheless invoked here as a rhetorical device to signal the gap between code and interface underpinning all digital media. The distinctness of the color metaphor (versus the red and purple glitches that precede it) also allows us to demarcate how digital glitch aesthetics are materially and symbolically distinct from their precursors. Namely, where prior media glitches involved a hands-on hacking of a canvas or media platform, in digital media, we necessarily move to a systems-level glitch where visual noise can, typically, only be generated by way of manipulating nonvisible, abstract code. Put differently, the black box creates a boundary around the media that prevents it from receiving a direct inscription on its material substrate, as analog glitches (painting, photography, film, and television) could. The vast majority of digital glitch art demands intervention on the level of abstract code. In this sense, a digital artist is not an artist at all but rather, a programmer.<sup>48</sup>

### *Net Art*

One early example of digital glitch art comes from the pioneering genre of “net art,” formed by an early generation of artists who experimented with the internet and computer media in the 1990s. As defined in the Introduction, glitch art is the deliberate aestheticization of what is otherwise deemed to be an error in digital processing. For hackers, net artists, and glitchers, however, these otherwise unwanted phenomena are valued as raw material for art making.<sup>49</sup> The net art duo JODI—Joan Heemskerk and Dirk Paesmans—have made deliberately glitchy, error-prone net art in the Netherlands since 1994. After attending Silicon Valley’s electronic arts laboratory CADRE at San Jose State University in California (Paesmans also studied with Nam June Paik at the Kunstakademie in Düsseldorf), they turned away from industry to nonprofit new media art. Like Léger, Duchamp, Dada, and Paik before them, Heemskerk and Paesmans are remix artists. But rather than mash-up music and television clips, or juxtapose magazine images and typography, JODI appropriates code from HTML, the Mac OS, hexadecimal values, and various other forms of computational data. Like much new media art, JODI’s work exists in between the luminous screen and the code that generates it. Using the logic of the otherwise obfuscated “backend” code, JODI foregrounds nonsensible hacks and computer glitches, setting the tone for newer generations of digital artists. I analyze two of JODI’s works here: *My%Desktop* (2002–10) and *All Wrongs Reversed* © 1982 (2004).<sup>50</sup>

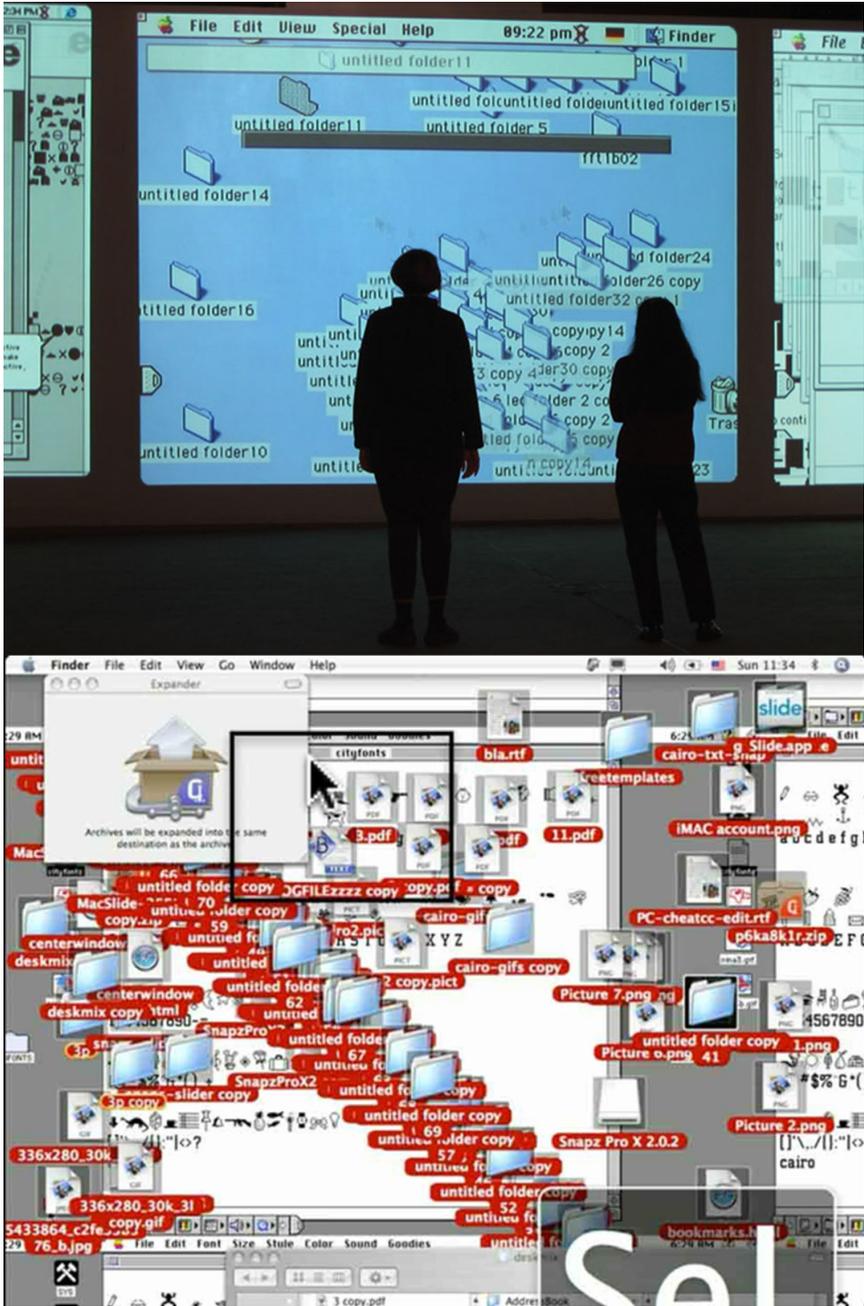


FIGURE 13. Jodi, *My%Desktop*, OS 10.4.2 c (2002–10). A user launches a website that results in the appearance of out-of-control errors.

*My%Desktop* was the centerpiece of JODI's first American exhibition, "INSTALL.EXE." In the spirit of postwar, post-authorial art, the piece consists of a large four-channel projection with simple instructions: play around with the icons on a computer desktop to such a degree that they become interesting to watch. The result yields a chaotic desktop-as-movie performance that incites confusion and fascination. To access a version of the work from home, a user enters a given URL that automatically downloads the software onto one's computer, after which "everything start[s] to go wrong. . . . If you tried to do something about it, it only got worse."<sup>51</sup>

Numerous viewers took issue with *My%Desktop*. "We were punished a number of times for that website . . . the host server would receive complaints. As a result, we had to move the website to a different location each time," Heemskerck and Paesmans explain. Their Brechtian maneuver operates in much the same way as the avant-gardes before them: errors are used to rupture a user's unconscious assumption about viewing and consuming media. Their dysfunctional glitch effectively functions in the form of discord, just as Godard's jump cut once did in the French New Wave, or Léger's cuts did in his early cinematic montage sequences. The fact that many viewers, especially students, find this piece frustrating attests to its effectiveness as glitch art. Years after its initial release, JODI still receives "emails with corrections and pitiful remarks from their audience concerning 'mistakes' in their work," Josephine Bosma notes.

Peter Weibel, director of the ZKM Center for Art and Media in Karlsruhe, even approached the artists after a presentation of the work to inquire, "What went wrong?" Paesmans explains the set-up prompting Weibel's inquiry: "[*My%Desktop*] took a picture of your desktop, which was then manipulated into different variants. If you tried to stop it, it would take you to a different variant each time. There was, however, no real manipulation of the computer at a deeper level."<sup>52</sup> In short, *My%Desktop* is only a simulation of the OS's breakdown, used to create the illusion of failure. If one presses "Command-Q" to quit the piece, the chaos ceases and the artwork shuts down, as with any other software application.<sup>53</sup> By toying with culturally conditioned responses to technical glitches, *My%Desktop* stages our human-computer anxieties while remaining under tight control.

Jon Satrom's 2010 witty remake of *My%Desktop*, *Windows Rainbows & Dinos* is a thirteen-minute single-channel work presented as a comedic-video drama about OS malfunctions that take place entirely on a Macintosh desktop. The piece is more entertaining than *My%Desktop*, primarily because it caters to an eye-candy spectacle and fails to post any real danger, whether actual or illusionary. Similarly, JODI's *All Wrongs Reversed* © 1982 (2004) is a forty-five-minute performance piece involving a vintage ZX Sinclair Spectrum computer from the 1980s, using BASIC programming language. In the performance, one sees streams of seemingly nonsensical data, numbers, counters, and hexadecimal code running on screen without a foreseeable end.<sup>54</sup>

For this pioneering generation of net artists, the *work* of the digital artwork was to articulate the constantly shifting relationship between code and interface. N. Katherine Hayles refers to this relationship as a series of “flickering signifiers,”<sup>55</sup> implying both terms are unstable but inextricably bound.<sup>56</sup> Another way to describe the strange relationship between screen signal and abstract, numerical code is to consider that code is only readable by machines, not humans. We may read and write code, Friedrich Kittler argues, but regardless, it is mostly incomprehensible, having been “encrusted” with layers of architecture that render it inaccessible.<sup>57</sup> In other words, code *shouldn’t* make sense to most of us. We shouldn’t be able to see or read the back end of the system as it boots up. This code is not meant to be visualized as an image in and of itself, but by doing so in *All Wrongs Reversed*, JODI calls attention to this relationship by inverting the “two-tiered” structure between the code and the interface conditioning all digital media.<sup>58</sup> Much early net art had this basic task in mind.<sup>59</sup>

We are now three decades from these humble “net art” origins and significant transformations in digital media aesthetics have been under way. Glitch art events, screenings, and festivals are now held in numerous cities and online venues, coupled with tumblers and online discussions. VJing performances are also popular among glitch artists, merging audio and visual glitches, particularly at conventions and symposiums such as the annual new media festivals GLI.TC/H and BYOB.<sup>60</sup> GLI.TC/H co-founder Nick Briz notes the rich diversity at the festival, a balance between commerce and hacker-punk types. It’s “evident from all the debates,” he writes, that “glitch.errz partake in glitch art for very different reasons. We had plenty of ‘punks’ present but we also had designers who work at ad agencies.”<sup>61</sup> The *Bring Your Own Beamer* (BYOB) festival was developed by Anne de Vries and Rafaël Rozendaal in 2010. It involves a series of one-night events and is now held in over eighty cities around the world. With the rise of mobile and personal computing, social media, and screen culture writ large, digital glitch aesthetics have become an increasingly salient feature of our social landscape.

To close the chapter, I turn to one final example of digital glitch not exclusive to computational code, but apropos to social and racial black-boxing in the twenty-first century. In Sondra Perry’s beautiful *Double Quadruple Etcetera Etcetera I & II* (2013, both are two-channel, silent video installations), one sees a digital animation of the dancers Danny Giles and Joiri Minaya moving individually in the corner of a white-painted studio. The body of each dancer is blurred by rapid movement. The only clear lines emerge from the intersection where the wall meets the floor and the performer’s swaying head of dark hair is contrasted with the white walls. Using the “content aware” function in Photoshop, Perry replaced the presumed “content” of the “natural” human dancer (the body, flesh, and limbs) with the studio’s walls and corner space enclosing it. The content aware function in Photoshop allows a user to select a “patch” of an image, from either the background or foreground, and then apply this selected “content” to another area. This results in the “body”

of the performer appearing to be emptied out and re-filled with the background “content” of the walls. The dancer’s movement is also sped up and treated with a fairly standard glitch effect. In the final works, the viewer sees a hyperactive and frenetic dancer perform at a seemingly inhuman speed, filled up with the matter of space.

Seen within the above-noted lineage of human-and-machine relations, from Léger through Conner and Paik, we can see Perry’s interventions as aesthetically affiliated but also distinct. Léger’s and Paik’s ballets mime and celebrate the uppity rhythms of mechanical and electric machines, respectively; and Conner’s dancer ecstatically attempts to “break away” from mechanized time. They do so through an embrace of the machine spirit, paying homage to the elegance of the human in it. In contrast, Perry’s dancers are trapped. Like them, we are all also placed in a “box” marked by race, gender, and socioeconomic status, let alone the many other algorithmic classifications engendering high-tech being. Perry’s dancers know and live this, but instead of responding with dismissal defiance, they generate a refreshingly bold reflection of it. Gone is the visionary spirit of the 1960s counterculture and the progressive utopianism dowsing modern art. Instead, we have error and breakdown as prosaic building blocks of being, of living with too many difficulties, identities, representations, and desires (double, triple, and quadruple) culled into a black box with no exit strategy.<sup>62</sup> Perry’s work shows us yet another devastating failure to move beyond pigeonhole classifications, intensified through algorithmic automation. This is our culture’s socio-computational glitch, glimpsed inside another, larger black box. Such frustrations appear everywhere today. Perry’s happen to do so in the shape of a frenetic dancer caught in the corner of a whitewashed cube, hollowed out and resigned to do nothing but perform quadruple spins over and over again. At least she had the wherewithal to bring the walls and floorboards with her.

The next chapter considers “color as noise” in the work of digital video artist Ryan Trecartin.