

SURFACE TENSION:

ON THE MATERIALITY OF SCREENS

By Tina Rivers Ryan

We may debate whether our society is a society of spectacle or of simulation, but, undoubtedly, it is the society of a screen. -----

----- Lev Manovich, "An Archaeology of a Computer Screen," 1995¹

As we spend more of our time staring into the frames of movies, television, computers, hand-held displays—"windows" full of moving images, text, icons, and 3D graphics—how the world is framed may be as important as what is contained within that frame. -----

----- Anne Friedberg, *The Virtual Window: From Alberti to Microsoft*, 2006²

The screen is not simply an enduring technique or evocative metaphor; it is a hardware object whose transformations have shaped the material conditions of our visual culture. -----

----- Jacob Gaboury, *Image Objects: An Archaeology of Computer Graphics*, 2021³

In 1996, the Moscow-born artist Olia Lialina created a webpage that is emblematic of the interactive, transnational, and playful ethos of early net.art. *If You Want to Clean Your Screen* displays only a ghostly, grayscale image of a disembodied hand with its palm facing out, floating on a black background (fig. 1).⁴ The base of the thumb is flattened, hinting that this image was made by pressing a hand against the glass plate of a photocopier or scanner. Between the palm and the glass is a large postage stamp showing a dark-haired woman in a white veil who holds a jug and looks at us somewhat coyly, her face in three-quarter profile. The artist has coded the webpage's HTML so that the browser window title contains a continuously looping message: "if you want me to clean your screen, scroll up and down." When you follow the instructions, the image itself does not change, but the hand appears to move up and down, mirroring your own "wiping" movements—as if the woman with the jug was "sent" to clean the inside of your screen from the deepest depths of the internet. Like a noir film, *If You Want to Clean Your Screen* is unsettling, and not least because it draws attention to the fact that our digital windows are still obdurately material objects—just like their analog counterparts. We tend to think of our screens as transparent to our vision, but what if they are also solid barriers that we can reach out and touch, like ghosts made flesh?⁵



Fig. 1 Olia Lialina, *If You Want Me To Clean Your Screen. Scroll Up and Down*, 1996. <http://www.entropy8zuper.org/possession/olialia/olialia.htm>.

Over the last three decades, this question has become all the more urgent, as digital screens have become more seamlessly integrated into the lives of more and more people around the world. They have become so ubiquitous—showing up even in elevators and on gas pumps—that it can be hard to notice them at all. Online shopping, distance learning, and remote working are increasingly the norm, especially in the wake of the COVID-19 pandemic; according to the Pew Research Center, 93% of American adults reported using the internet in 2021.⁶ But technologies are not merely neutral tools of convenience: they also are embodiments of specific ideas and values whose very design can profoundly influence our lives. For example, networked screens allow us to engage in communication that is both instantaneous and anonymous, which has contributed to the surge of viral conspiracy theories, disinformation, and cyberbullying. Understanding not only *what* screens show us but also *how* they show it is therefore increasingly integral to making sense of our world.

Within the humanities, scholars working in the field of media studies have written scores of texts exploring the cultural impact of screens, giving rise to an entire subfield known as "screen studies."⁷ Their inquiry stretches back from today's digital devices (including personal computers, smartphones,

smartwatches, and a rising number of machines and appliances, such as cars and refrigerators) to analog television screens, film screens, and even older screen-based entertainments, such as magic lantern shows. Etymologically, these screens for the display of media are related to the screens that are used as furniture or architecture, such as fire screens or choir screens (fig. 2). As Francesco Casetti and Bernard Dionysius Geoghegan explain, in fifteenth-century English, French, Italian, and German, a screen “was a filter, a divide, a shelter, a camouflage. These functions underscored not so much the optical qualities of a screen as its environmental character—its nature as a prop to be used within and in relation to a space.”⁸ While screens began to be associated with optical experiences in the early nineteenth century, digital technologies have returned screens to their roots: GPS tracking, “wearables,” augmented and virtual reality, and billboard displays all rely on screens whose “opticality is deeply rooted in their spatial and environmental conditions.”⁹ In other words, contemporary media screens are not only optical devices but also physical objects that are positioned in real space, functioning as gateways “between the material and the immaterial, the real and the virtual,” as Erkki Huhtamo has summarized.¹⁰ For this reason, defining “screens” is a bit of a challenge: they are not reducible either to a specific material substrate (whether wall, cloth, glass, or



semiconductors) or the content that they show (whether live or recorded, still or moving, or created by sun, hand, camera, or algorithm). Rather, screens are a kind of interface between object and image that is constantly evolving, manifesting as different formats and cultural practices over time and across space.¹¹

Digital screens, in particular, can reflect—and even contribute to—significant changes in how we see the world and ourselves. Originally developed for World War II-era radar systems that required the real-time display of information that human operators could interact with, digital screens made numerical data sensible by transforming it into visual information that could be “touched”—originally with a lightpen, then with a mouse, and now with our fingertips. As Geoghegan explains in his work on the birth of the computer screen, this interactive image also required a transformation of the human into a constantly screening, networked subject that is just another circuit in a flow of information among environments, instruments, and users—as evidenced by the way that radar operators adapted their gazes, reflexes, and behaviors to the operation of their machines.¹² In his book *Image Objects*, Jacob Gaboury observes that computer graphics are reshaping our material world, too: the mass-produced objects around us are manufactured from images that we make and view on our

Fig. 2 Choir screen, Cathedral Church of St. Peter and St. Wilfrid, Ripon Cathedral, England

computer screens, as in the cases of architectural and industrial design or 3D printing. More profoundly, computer graphics suggest that every object we see is, or has the potential to become, both an object and a computational image. Thus, computer graphics both make and frame the world in their “dual logic: at once visual and material, representation and calculation, both image and object.”¹³

The history of our dual-natured screens has been shaped not only by technological advances but also by the imaginations of artists—that is, those who make images material. Nineteenth-century photographers like Eadweard Muybridge helped pave the way for the development of projected movies; in the early twentieth century, Thomas Wilfred promoted “lumia,” or abstract patterns of color projected on screens by electric lights. Video artists such as Nam June Paik invaded network studios in the 1960s, developing new paradigms for broadcasted television content (including what would later become the “music television” aesthetics of MTV) and even designing new tools for synthesizing electronic signals. At the same time, experimental filmmakers like Paul Sharits pioneered a new form of “expanded cinema” that rejected the conventional setup of an immobile spectator staring at a single projection. Instead, they created works that were spatial and environmental, whether presenting projectors and

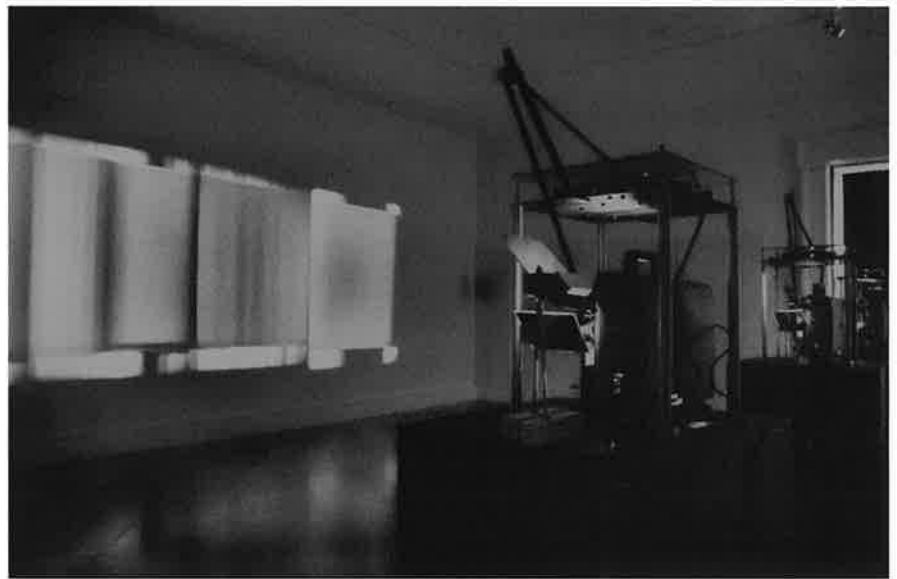


Fig. 3 Paul Sharits, *Dream Displacement*, 1976. 16 mm film, color, quadraphonic sound, and four-screen projection; indefinite duration, running times vary, continuous loop; edition 1/3. Collection Buffalo AKG Art Museum; Gift of Mrs. George A. Forman, by exchange and Charles W. Goodyear Fund, by exchange, 2012 (2012.44a-d)

screens as sculptural elements or bombarding viewers with images from multiple angles (fig. 3). With their emphasis on materiality and embodied experience, these artworks explicitly engaged the history of art and contemporaneous movements like Minimalism, paving the way for an arena of contemporary art that has been called “time-based media art” or simply “media art.” Although definitions vary, this field generally includes works made with film, video, and digital media technologies, as well as with other media technologies that do not rely on screens, such as radio. Unlike examples of screen-based popular culture, screen-based artworks are not just portals to other worlds (though they can be that, too). Rather, they are interfaces with our interfaces—screens that show us our screens, allowing us to see not just the images they show but also their frames, which screen (or screen out) the world as we now know it.¹⁴ In her book *Screens: Viewing*

Media Installation Art, Kate Mondloch concludes that the “critical gesture” of such works “is to call attention to the nature of screen-mediated visibility and to creatively disrupt our conventional relationships to media and imaging technologies in the process, however briefly.”¹⁵

Today, many screen-based artworks are created specifically for display on screens in art spaces including galleries and museums, despite alternative options for distribution, such as DVDs or YouTube.¹⁶ Since the turn of the twenty-first century especially, museums have increasingly acquired and exhibited screen-based works. In 2001 alone, three major museums organized now-canonical exhibitions: the Whitney Museum of American Art presented *Into the Light: The Projected Image in American Art, 1964–1977*, a groundbreaking survey that reignited interest in analog media art; SFMOMA presented *010101: Art in Technological Times*, an early group show of cutting-edge digital and internet art; and ZKM Karlsruhe presented *CTRL[SPACE]: Rhetorics of Surveillance from Bentham to Big Brother*, which integrated many screen-based works into a larger story about contemporary art. The 2014 exhibition *Art Post-Internet* at UCCA Beijing announced the arrival of a new generation of artists surfing in the wake of the internet’s virtual flows of information, many of whom specifically addressed the tension between objects and images. This was soon followed by a wave of exhibitions surveying artists working with screen technologies over the last few decades, such as the ICA Boston’s 2018 show *Art in the Age of the Internet, 1989 to Today*. Exhibitions of not only video and net.art but also virtual reality, augmented reality, artificial intelligence, and, most recently, NFTs are now part of the art world’s regularly scheduled programming, from galleries to art fairs, alternative nonprofit spaces, and public

art installations. More than a decade ago, the art historian Tamara Trodd argued that the prevalence of screens inside the art museum suggests that it is “a space in flux, but not outmoded: constantly inflected by the other spaces to which it is related by the works on show within it, and by new viewing technologies and the unfamiliar habits of viewing which they bring.”¹⁷ In her estimation, museums were (and remain) relevant because they can function as a kind of cultural sandbox in which artists and their audiences can gain a new perspective on the established and emerging screen technologies that we regularly encounter at movie theaters, on the sides of skyscrapers, or in the living rooms where we “Netflix and chill.”

By presenting screen-based works IRL—“in real life,” within the architectural and discursive space of art and art history—museums allow us to better appreciate the double nature of both screen-based art and screens themselves. We may be tempted to imagine each screen-based artwork as no more than the image shown on the screen, as if a disembodied memory existing somewhere in the ether. But all images—even digital ones—must be stored in a material substrate; there is no such thing as a truly “immaterial” image. Further, when images happen to be stored on tapes or hard drives (as opposed to paper or canvas or marble), they have to be displayed on some sort of screen in order to be accessed—even if this “screen” is one made of wood cubes, as in the case of Daniel Rozin’s “Wooden Mirrors” (fig. 4). These displays have their own aesthetic

qualities that will necessarily influence our experience of the work, such as size, scale, texture, and luminosity. We may not consider the aesthetics of our screen when we view a digital video on our smartphone or battle in Fortnite, but it is harder to deny when we stand in a white-walled (or black box) gallery and find ourselves facing a vintage CRT monitor on a pedestal or a flatscreen hung next to a painting on a wall. In fact, the aesthetics of media art is so contingent upon its display that it can be thought of as a kind of performance art: like a musical score or piece of choreography—which will vary from one performance to the next—each media work must be “performed” anew by installing it on hardware systems that almost certainly will change over time, given the problem of technological obsolescence.¹⁸

Whether designed by curators or by the artists themselves, the physical placement of screen-based work substantially shapes our experience of it—precisely because screens are both image and object. The relationship



Fig. 4 Daniel Rozin,
Wooden Mirror, 1999.
Wood pieces, motors,
video camera, custom
electronics, custom
software, and micro-
controller.
60 x 70 x 8 inches;
edition of 6, 1 AP

between our physical bodies and these screen objects is explored in some of the most iconic early works of video art, including Nam June Paik's *TV Buddha* sculptures, which he first created in 1974 (p. 26-27). These works include a small screen that faces a similarly sized Buddha sculpture, which contributes to our sense that the Buddha is gazing at its own reflection through the technological circuits of a real-time video feedback system. Because the screen directly faces the Buddha, we are denied the chance to see the screen head-on—suggesting that we are merely bystanders to this intimate encounter. This intimacy mirrors our own increasing familiarity with the screen as a private portal, while transforming it from personal entertainment into a kind of shrine that reveals us to ourselves. Of course, not all screens are personal; the large-scale screens that we regularly encounter in public places like movie theaters and stadiums address us not as individuals but as members of an aggregate social “body.” Many screen-based

works similarly use large or multiple screens to address multiple people at once; some of these works explore how screens can themselves become part of our social fabric. IMediengruppe Bitnik's installation *Ashley Madison Angels at Work in London*, 2017, features five videos that are each shown on forty-inch LCD monitors mounted on metal trolley stands, easily filling a small room (see p. 130–31). The stands function as “bodies” for the animated heads on their screens, creating a crowd of cyborgian women that we seem to join as we move through the space. Given the work's reference to a popular website used by men hoping to cheat on their wives, this anthropomorphic installation creates an uncomfortable social situation in which we become implicated, whether we identify with the women or their male suitors.

Given the degree to which the artists incorporated screens as sculptural elements, each of these works is arguably a hybrid “video sculpture.” But even a file-based artwork like Petra Cortright's *VVEBCAM*, 2007, can remind us of the materiality of screens (p. 116). The content itself layers the physical and the virtual: it is a recording of the artist's deadpan webcam performance on YouTube, to which she added graphical elements like cartoon pizzas in real time, eliciting hostile comments from her confused viewers. While the file is “fixed” (putting aside the issue of compression or bitrot), its installation on variable hardware systems can alter its meaning: for example, vintage PCs can frame the work as a kind of period piece that captured the early days of social

media, whereas projecting it on a movie screen can underscore its narrative and performative elements.

In either case, the installation offers a meta-commentary on our relationship to our screens: watching Cortright watching her feed feels like gazing into a (black) mirror. Paik's Buddha finds in its reflection a kind of technologically mediated transcendence—the undisturbed peace of an eternal present (without past or future, history or politics). Cortright, in contrast, seems trapped within the feedback loops of a totally networked society. Even on a formal level, it appears there is no escape, in the sense that there is nowhere “outside” the frame: her webcam feed is nested within YouTube, which is nested within her Safari browser, which is nested within her screen, which is nested within the museum's screen, which is nested within the museum, which is embedded in the same social and technological systems in which Cortright is embedded while sitting alone in her room. As Mondloch suggests, if once we were “subjects,” now we are all “screen subjects.”¹⁹ No wonder so many artists have found themselves drawn to the powerful image of the shattered screen, from Eva and Franco Mattes to Penelope Umbrico and *American Artist* (p. 143). When the characters in horror stories find themselves struggling with an invisible power, their impulse is to entrap it in physical form so that it may be destroyed—but as these artists know, the screen is so powerful precisely because it was always material to begin with.

- 1 Lev Manovich, "An Archaeology of a Computer Screen" (1995), reworked into "The Screen and the User," in *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 95.
- 2 Anne Friedberg, *The Virtual Window: From Alberti to Microsoft* (Cambridge, MA: MIT Press, 2006), 1.
- 3 Jacob Gaboury, *Image Objects: An Archaeology of Computer Graphics* (Cambridge, MA: MIT Press, 2021), 55.
- 4 The work was purchased by the net artists Auriea Harvey and Michaël Samyn (also known as the collective Entropy8Zuper!) and can be viewed on their website at <http://www.entropy8zuper.org/possession/olialia/olialia.htm>.
- 5 Notably, the idea that screens are a physical barrier between two worlds that can be traversed or transgressed is a trope in science fiction and horror movies precisely because it violates our sense of what the media screen is or should be.
- 6 Andrew Perrin and Sara Atske, "7% of Americans Don't Use the Internet. Who Are They?," Pew Research Center, April 2, 2021. <https://www.pewresearch.org/fact-tank/2021/04/02/7-of-americans-dont-use-the-internet-who-are-they/>.
- 7 For an overview of this literature, see Stephen Monteiro, ed., *The Screen Media Reader: Culture, Theory, Practice* (New York: Bloomsbury, 2017).
- 8 Francesco Casetti and Bernard Dionysius Geoghegan, "Screen," in *Information Keywords*, eds. Michele Kennerly, Samuel Frederick, and Jonathan E. Abel (New York: Columbia University Press, 2021), 164.
- 9 *Ibid.*, 165.
- 10 Erkki Huhtamo, "Elements of Screenology: Toward an Archaeology of the Screen," in *ICONICS: International Studies of the Modern Image 7* (2004): 34. Admittedly, in this particular passage, Huhtamo is more directly addressing the fact that screens are not only objects but figments of our imagination (as in the case of screens that appear in science fiction).
- 11 Alexander Galloway's concept of the "interface" as not so much a single thing but rather an "interface effect" is relevant here. See Alexander R. Galloway, *The Interface Effect* (Cambridge, UK: Polity Press, 2012).
- 12 Bernard Dionysius Geoghegan, "An Ecology of Operations: Vigilance, Radar, and the Birth of the Computer Screen," *Representations* 147 (Summer 2019): 59-95.
- 13 Gaboury, *Image Objects*, 7.
- 14 In her book *Screens: Viewing Media Installation Art* (Minneapolis: University of Minnesota Press, 2010), Kate Mondloch argues that screens specifically "draw attention to the typically overlooked viewer-screen interface—the conceptual and material point at which the observing subject meets the technological object—and thereby open a space to consider critically the nature of contemporary screen-mediated viewing" (xvii.).
- 15 Mondloch, *Screens*, 94.
- 16 Mondloch argues that we should use the term "screen-reliant" instead of "screen-based" to subtly indicate that the category of "screen" is "performative" and that anything can be a screen (Mondloch, *Screens*, 2). While I agree with her reasoning, "screen-based" is the more familiar and accessible term, and so I use it here. Of course, there is another tradition of screen-based

work that is *not* intended for either the gallery/museum or the internet: namely, screen-based public art, such as those works commissioned by public art and media art festivals. On these works, see Annie Dell'Aria, *The Moving Image as Public Art: Sidewalk Spectators and Modes of Enchantment* (London: Palgrave Macmillan, 2021).

- 17 Tamara Trodd, "Introduction: theorising the projected image," in *Screen/Space: The projected image in contemporary art*, ed. Tamara Trodd (Manchester: Manchester University Press, 2011), 17.
- 18 The media art curator and conservator Jon Ippolito was one of the first to present the idea of digital art as being a kind of performance. See Jon Ippolito, "Digital Performance: Damnation or Salvation?" in Kenneth Schlesinger, ed., *Theatre Library Association Symposium Proceedings: Performance Documentation and Preservation in an Online Environment* (Performing Arts Resources 24) (New York: Theatre

Library Association, 2004). This idea also appears in the work of the conservator Richard Rinehart, who notes that "musical scores provide a well-known example of a *standardized way of describing highly variable works of art that aids in the reperformance or re-creation of those works*" (emphasis in the original). Richard Rinehart, "Metadata and the Historic Record," in *Re-collection: Art, New Media, and Social Memory*, eds. Richard Rinehart and Jon Ippolito (Cambridge, MA: MIT Press, 2014), 63. Ippolito also was one of the co-curators of what was perhaps the first museum exhibition to foreground the variability of media art, *Seeing Double: Emulation in Theory and Practice*, at the Solomon R. Guggenheim Museum in 2004.

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Mondloch, xxi.

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