Chromatic Algorithms

Synthetic Color, Computer Art,
and Aesthetics after Code

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Jordan Crandall

Since the late 1990s Crandall has been using a variety of mixed media to explore what he refers to as the "dark visions [of the] the techno-militaristic control society" and the ways in which contemporary images are increasingly enmeshed within militarized complexes. Crandall is very much unlike those who, on the one hand, moralize any and all war-related pursuits as unjustifiable, aberrant, and negative—to be feared, shunned, and thwarted at all costs. On the other hand, he is also unlike those who perversely fetishize the atrocities of war and military brutality, like the Futurists or Surrealists, who celebrate war's horrors as an "aesthetic pleasure of the first order." ("Beauty will be convulsive or it will not be," André Breton wrote in 1928.)[42] Crandall refrains from either extreme, working in the margins between the human and the machine to generate alternative strategies for reality, experience, and desire in an increasingly militarized culture.

Donna Haraway has suggested that in the information age critical interventions arise through unholy fusions between humans, animals, and machines, "blasphemous" to their military-industrial origins. Computers, she argues, have become especially lively and humans, passive and inert.[43] Life is more alive when computational, and humans, when we engage them. This is by no means cynical but a mere snapshot of the way life is actually lived. The question is not "what's wrong with this picture" or how do we "oppose the big informatic system" but, given our utter and inextricable immersion in a world of computation, what are we doing and *how* are we doing it?

Crandall's *Heatseeking* (2000) was developed specifically in the context of InSITE, a joint cultural project between the United States and Mexico (figure 6.7). The project resulted from his reflections on the border region at San Diego / Tijuana, the busiest border crossing in the world. *Heatseeking* consists of a six-channel installation involving several 16 mm films and surveillance videos made at the border using miniature stealth cameras and infrared thermal imaging systems. The images are seemingly disparate: home interiors, power cables, naked bodies barely touching, a golf course at night, a naked man and woman in a navy vessel, and U.S. Border Patrol footage that Crandall appropriated of illegal immigrants crossing the border from Mexico, including an infrared satellite track of a naked woman crawling along the beach at night.

In this track, called "shore," a grainy image of a nude woman poised on all fours is seen crawling along the sand (figure 6.8). The hazy low-resolution outline of her black-and-white figure softly morphs and blurs at the edges as she moves, the result of an editing technique that emphasizes both her anonymity and her vulnerability, charging her movements with an intensified eroticism. In part this eroticism derives from the *lack* of detail and the inability to identify the woman visually or optically, a characteristic also found in night vision's cold green coloration. Marshall McLuhan's definition of "cool media" characterizes

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6.7 Jordan Crandall, *Heatseeking*, 2000. Bodies and desires are targeted and caught in the algorithmic track. Courtesy of Jordan Crandall.

6.8 Jordan Crandall, "Shore" from *Heatseeking*, 2000. C-print mounted on aluminum, 12.5 × 24. Crandall uses data from infrared thermal images captured from surveillance cameras at the U.S/Mexico border to create these techno-erotic images. Courtesy of Jordan Crandall.

precisely this shift from "hot," optically detailed and uncompressed high-resolution film images, to the cooler, low-resolution, video and algorithmic ones. The old-world "vision-knowledge" couplette, reliant on detail and subtlety, is here undercut by the intentional concealment and partial visibility of the low-resolution image.

Low resolution is also a means of seduction and control. As the title *Heatseeking* implies, the woman is the target of an infrared heat-seeking system, used to monitor and patrol this highly regulated region. The infrared track brings a cold eroticism to the "hot" track. Adding to this is the anonymity and abandon with which she seems to resign herself to the global satellites that watch her, seen by everyone and yet no one in particular. Or perhaps it is also the case that the image simply captures the absence of anxiety in knowing that what happens in the dark has become as banal as what happens in the light of day. Indeed, *Heatseeking* emphasizes the way in which military intelligence and smart technologies have already become a part of vernacular culture, "a political language . . . resonant with the visual networks in which we are now entangled."[44]

This entanglement is not, however, primarily optical, as with the privileged lines of sight in the Panopticon, but instead pervasively physiological and corporeal *first*, and visual *second*. The political landscape is significantly more intrusive than the softer and more passive psychological (though hierarchical) topology of the surveillance model, but it is also for this reason that Crandall regards this perceptual system as one capable of a new kind of "care." As he puts it: "To be watched and tracked is to be cared for and this comforting gaze carries with it an erotic charge."[45] For Crandall the decline of optical vision as a cultural dominant is no reason for nostalgia or melancholy. No psychoanalytic lack or angst fuels his images. To the contrary, his reconfigurations create new conditions and strategies for life and desire *within* these series of informatic exchanges, between partial looks, machines, and pulses.

Along similar lines is Crandall's *Drive* (1999–2000), a seven-track four-channel video installation combining 16 mm film, satellite-derived photography, digital video from wearable DVcams, Hi8 video, and computer animations (figure 6.9) The images in the installation, divided into "Tracks," are also seemingly disparate: black-and-white images of a topless woman driving a car (in Track three); a naked woman standing in a small cubicle-like room, seen from overhead through a night vision filter; an infrared view of a military helicopter hovering in the sky at night; and slow-motion pictures of an elderly man spanking a young woman.[46]

The images are unified through tropes of seeing, being seen, tracking, looking, observing, watching, and to state the obvious, sexuality. *Drive* invokes a sense of "paranoid scopophilia," according to Peter Weibel, that "both escapes and invigorates a panoptic regime."[47] This may be so, and one may

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presume Crandall has combined the optical and the algorithmic, but when considering all the Tracks together it becomes clear that his subjects have already been caught and made targets of the information systems, before vision occurs. This is further illustrated through the emerging figure of the exhibitionist, indigenous to the algorithmic model, and now replacing the formerly dominant figure of the voyeur from the panoptic model.

Exhibitionism as Algorithmic Ontology

In *Drive* and *Heatseeking* it is the exhibitionist, not the voyeur, who is the erotic figure and trope of choice. It may seem odd to introduce a vulnerable naked body into a traditional military tracking system (being that much easier to control and command), but it is precisely this hyperdividuated mix of vulnerable flesh and cold command system that gives the piece its eroticism and philosophical charge. An additional example of this is in Track three of *Drive*, where a topless woman driving a car on a California freeway self-consciously puts herself on display. This is not the unknowing and passive female exhibitionist of the cinematic gaze. Rather, the new school exhibitionist is born from the generative principles of informatics and tracking circuits.[48] The woman's brazen disposition, like the nude in *Heatseeking*, mimics the cold and undiscriminating eyes of the satellite systems that track her as she drives. In another sequence from Track three, a naked woman stands in a small cubicle-like room and changes, seen overhead from the point of view of a small night vision camera. She moves things around; knows she is being watched, but instead of showing embarrassment or shame, she performs for the camera. Without directly looking at it, she mirrors its sturdy but indifferent attentiveness.

6.9 Jordan Crandall, *Drive*, 1998–2000. Installation view of Tracks 3 and 6, Neue Galerie Graz. This four-channel installation explores emerging models of algorithmic perception though infrared and night vision technologies. Courtesy of Jordan Crandall.

In the past we may have considered things like human interactions "with" a computer, where the two entities were understood as discrete, but now we have "activity-systems" where human and machines are synthesized in a hyper-dividuating feedback loop. Exhibitionism becomes a precondition for life, desire, and existence, whether visual or otherwise. Moreover, because infrared tracks are dynamic and occur in real time, the figure of the exhibitionist highlights the way in which these circuits bear a *performative dimension* and are thus open to intervention and change in ways that the surveillance model is not. For example, a person *can* alter a data pattern by adjusting their own behaviors to meet—or trick—the capture devices. At the same time, the performative aspect of the system could be used for more pernicious and unprecedented forms of behavior control and work "optimization." For instance, a worker's patterns may change due to the presence or absence of sensors strategically placed in workstations around a facility, as with Olivetti's black badges. Herein lie both positive and negative applications of the infrared model in regards to hyperdividuation. The trope of the exhibitionist is key because, unlike the classical exhibitionist in the voyeur model, he or she can exploit the system through display and spontaneous performance, just as Paper Rad's animations—as discussed in the previous chapter—undermine expectations for smooth and seamless media consumption.

To become this kind of exhibitionist one must voluntarily enter the system, consciously become its target and prey. This is of course distinct from actual applications of tracking systems, where subjects, at the U.S.-Mexico border for instance, try to *avoid* being caught by the infrared satellites. In *Heatseeking* and *Drive*, one volunteers to be in the circuit, reaping pleasure from being caught and becoming prey to it. Crandall creatively exploits the performative attributes of these systems by allowing his actors to mechanize their gestures in a *perverse way*. The actors shape and adapt their erotic drives to meet the new rhythms of the informatic machine. In track three of *Drive*, the images of the woman being spanked are mechanical, without the hyperbolic sexualization that one would normally see in this kind of scenario. They instead bear a per-functory anonymity, showing how the woman performs not for the man "playing" the sadist, but ultimately for the cold, uncompassionate quantizing system that has caught both of them (figure 6.10). Submitting to the track, the logic of the machine, Crandall argues, is part of a new topology of pleasure in the informa-tion age. The former "edge" ascribed to sadomasochism or exhibitionism is here dulled, flattened into an almost unfeeling, low-resolution, and yet slightly pernicious sexiness. Crandall's work marks the shift from the voyeur or nar-cissist (see chapter 5) who saw and knew through the world through optics and lenses to the new world of the hyperdividuated-exhibitionist who comes into being through the collective intelligence of human-computer exchanges.

If the second half of the nineteenth century through the early twentieth is characterized by a "frenzy of the visible"—a process that led to the total
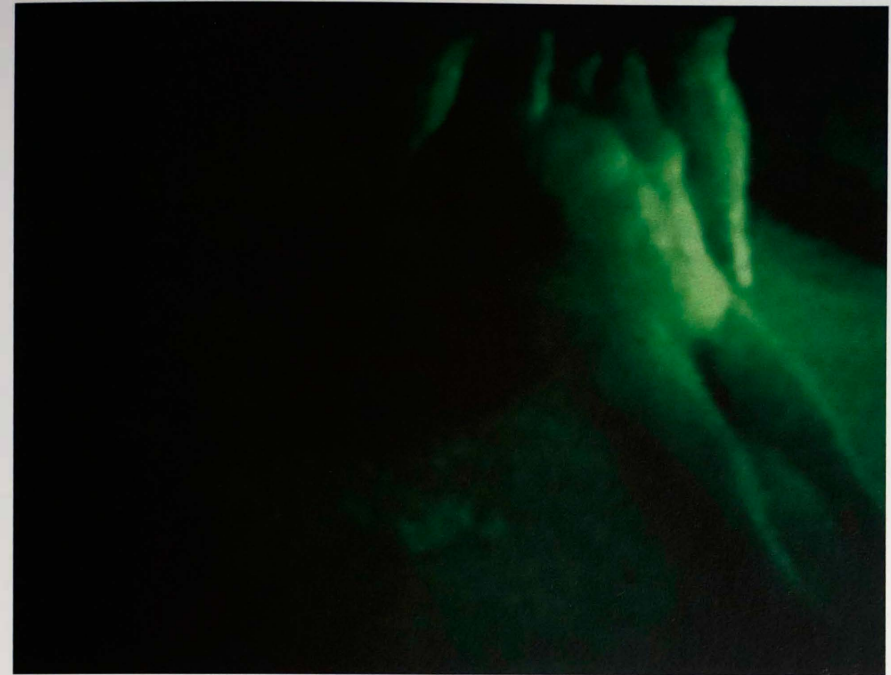
6.10

reification and mechanization of visual images—what Guy Debord identified as the commodity form par excellence—then in the information age, the equiv-alent becomes the strategic use of algorithms not just for the production of visual knowledge but also to engender desire and life experience. The algorith-mic exhibitionist can be seen as the new agent and provocateur demonstrating that it is only *through* dynamic and interactive information systems, which are part visible and part invisible, that being and desire become. The *act* of showing—posting, blogging, logging in (one need not show naked flesh or even a visual image to be an algorithmic exhibitionist)—has come to replace the passiveness of looking. Showing occurs not *for-an-other* but in order *to be*. What counts is that one can, does, and must produce oneself—produce existence—through this new "democratic" mass medium where one is finally "empowered" to interact. Enforced interaction is therefore also a facet of hyperdividuation. The *fact* of a data transfer trumps old-world values of nuance, detail, and above all, signification. Affirmation of life comes from the successful encoding and decoding of a signal: one either is or is not. Just as it is with infrared imaging, data is made to appear through hypertechno-logical means where content and nuance are bracketed out. Mirroring this process is the exhibitionist, underscoring how, in the algorithmic lifeworld, we have (again) become "a different subject from man, something other than the human type."[49]

In sum, the algorithmic exhibitionist reflects broader technological and cultural changes from the private domestic world of media consumption, of television or dark movie theaters, to a public domain of peer-to-peer social

6.10 Jordan Crandall, "Track 3" in *Drive*, 1998–2000. A naked woman seen overhead through a night vision filter.

media in a "millennial cam girl universe," as Bruce Sterling puts it. Consider the billions of semi-anonymous YouTube videos depicting "private" thoughts, fantasies, diaristic secrets and fears—whether verbally, visually, or otherwise. For many young people, so-called "private" or "domestic" lives, whether social, sexual, or otherwise, are often meaningless because their lives have been lived online from the start. Exhibitionism is inscribed and prescribed in modern life, even when one does not desire it. In order to be a functional and productive member of society, one must accept these conditions. *How* this acceptance occurs, however, remains (in some cases) open.

Post-optic Visions

Equipped with an infrared camera, would Jimmy Stewart of *Rear Window* have seen too much, through walls and curtains, or would he have seen too little, denied optical detail and nuance? The question is vital because in practice optic and algorithmic systems are often integrated and the difference between them is obscured. In order to create awareness of the epistemological and ontological changes we face in algorithmic culture, in this chapter it has been necessary to separate them, as summarized in the table. *Rear Window* is an example of the optical model, which emphasizes visual metaphors and watching from a safe and passive distance, where those being watched may not even be aware that they are being watched. In contrast, the algorithmic model—exemplified by *Heatseeking* or *Predator*—relies on the capture of data as information units, where color becomes a function of a dynamic information system in which users are literally and physiologically fused into the (invisible) track and capture logic.

My arguments for a decline in the optical image in exchange for a rise in algorithmic visualization as a new cultural dominant is not so much about an obsolescence as it is about the way in which perception and experience are increasingly shaped and structured by the logic of informatics and data capture systems. While many examples—ultimately any real-time computer-generated digital image—could have been used to illustrate this argument, I chose digital infrared because it is a color naturally invisible to humans, and thus any presentation of it highlights the shifting boundaries between the visible and the invisible, and the ways in which this occurs through the enculturation of military-industrial intelligence and weapons systems.

Somewhat similar observations have been noted by Rey Chow in *Age of the World Target*, by Phil Agre in "Surveillance and Capture," by Paul Virilio under the heading of "speed politics," and by Gilles Deleuze in his articulation of the "society of control." However, there are differences: for instance, Chow argues that the "target" logic derives purely from the optical tradition.[50] In contrast, infrared, because it falls beyond the range of human vision even when

	Optical Vision	Algorithmic Image
Period	Eighteenth through early twentieth century Michel Foucault's "Disciplinary Society"	World War II through the present Gilles Deleuze's "Society of Control"
Mode of production	Humans, with the aid of optical devices or visible evidence, "witnessed" in the visual or empirical world. Re-presentation or copying through mimetic or indexical means.	Information machines use sensors to track, capture, and scan a target that is then quantified through algorithmic processing, in real time Simulation, transcoding, and translation between two dramatically different languages/systems So-called images exist only as an adjunct to algorithmic processing and information transfer (data visualization/information aesthetics)
Visual epistemology	Fixed subject-object positions; passive perceiver is privileged over the perceived object (highly gendered pairing). Theories of the gaze (voyeurism, surveillance), optics (Panopticon, centralized structures of power) Logos of the eye; conflation of truth, knowledge, and vision	Subversion of traditional subject-object relations because the human is physically immersed in feedback circuits. One's body becomes the source of data. System is not fixed but open and flexible (through exhibitionism or interactive performances). A priori programming determines future knowledge.
Psychological metaphors	Voyeurism and scopophillia Narcissism (chapter 5), identity Private/domestic life and desires, viewing habits for discrete spaces Subject effect created through surveillance apparatus	Exhibitionism; anonymity in profiles and user names (hyperdividuation) Self-affirmation through public display and interactivity (hyperdividuation) Perceived surveillance becomes nonissue in exchange for the affirmation of existence gleaned in the act of self-display

Table 6.1 Two models of perception: the optic and the algorithmic.

aided by optical prosthetics, illustrates the way in which digital images are, from the start, produced by and through information technologies—algorithms— not optics and hence they are "post-optic." The image, if there is one, *is always an adjunct to the algorithm.*

It may seem like a small bone to pick: yes, colors and images are increasingly generated and manipulated through mathematics and not by optics or natural vision, so what? But consider: should the current forces driving the logic of algorithmic processing proceed unchecked, what would it mean to live in a society where all forms of experience become a question of economic exchange; always seeking and favoring interactions that tend toward cost and transaction reduction? How would we go about imposing algorithmically precise formulas on previously unformalized qualitative relations—such as love, desire, anger, or rage? What are we to do if, in fact, "the basis for the emerging universe and consciousness," as Flusser puts it, is restricted to the "calculation of probability"? Or if, as Stiegler suggests, we have come not to the end of the human (we are already posthuman) but rather to the transformation of the human to such a degree that we are no longer able to access or communicate with other beings? Critical attention to the material and ontological processes involved in algorithmic processing opens up broader questions concerning social and cultural operations: the production of visual knowledge, concerns about privacy, shifts in the political and economic infrastructure, and perhaps most importantly, what it means to be human, alive, and desiring in the algorithmic lifeworld. These questions are pressing, yet there are no easy answers. The shaping of future societies depends on attentiveness to the particularity and context of algorithmic visualizations, and above all, when we remember that new media are not just passive "tools" but rather, they are historical, social, and political agents that play active roles in shaping who and what we are and could and will become.

In the next chapter, the final one before the postscript, I take the ideas introduced here and translate them into a theory of an emerging visual style that I call the "Photoshop cinema." Just as this chapter argued that contemporary digital color, in the form of infrared images, has more to do with cold and inscrutable algorithms than with optics or the nuances of subjective expression, so too does my theory of the Photoshop cinema argue that digital colorism is today more concerned with an informatic and cool indifference. Chapters 6 and 7 thus work together as two sides of the same Janus-faced coin: the cold inscrutable logic of the invisible algorithm and its corresponding opaque, yet highly saturated, visual style.