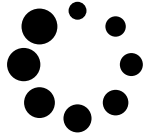


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Clothes with  
no emperors:

the materiality of  
digital fashion

by Jane Y. Zhang

Digital fashion

Materiality

Atmosphere

Hapticity

Aesthetic economy

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→ Just an illusion? Between simulation,  
emulation, and hyper-realism

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# Clothes with no emperors: the materiality of digital fashion



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## Abstract

Digital garments are tailored computationally and dressed virtually. Intended to be displayed rather than worn, digital fashion exemplifies the function of aesthetic commodities as defined by Gernot Böhme: the production of atmospheres – intangible qualities arising from a material encounter – towards the staging of life. Yet, made from pixels instead of fabric, virtual garments beckon a new conceptual framework for the role of materiality in atmospheric productions. Drawing from new media and affect scholars, this essay traces the display of digital garments across three sites: the e-commerce website, social media, and the runway show. By analyzing the visual and literary production surrounding digital fashion, this essay proposes “elemental surface” as a representational technique and rhetorical strategy through which digital garments produce and intensify the body’s affective presence. Situating Böhme’s formulation of atmosphere in dialogue with the notion of “aura” put forth by Walter Benjamin, the study of digital fashion foregrounds the role of environmental perception in the history of haptic technology.

## Keywords

[Digital fashion](#)

[Materiality](#)

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## Introduction

Scrolling through an online fashion catalog, you come across a piece of clothing that reminds you of your favorite song: it is bold but not *too* bold, casual with just the right amount of edge. You add the item to your shopping cart. At checkout, you are asked to upload a photo of yourself. So you pose in front of the camera, dressed minimally under good lighting. One business day later, instead of arriving in a package in the mail, the garment appears as an email attachment in your inbox, carefully composited onto the photo you have uploaded.

Since its inception in 2008,<sup>1</sup> digital clothing has quickly gained traction in the fashion industry, giving rise to independent digital fashion houses as well as partnerships with well-established clothing brands. Daria Shapovalova, the cofounder of DRESSX, summarizes digital fashion as being “all about how we can replicate the experience of physical clothes in digital.”<sup>2</sup> The statement is counterintuitive at first sight. Made from pixels instead of fabric, digital garments cannot shield our bodies from the bracing winds of winter or the unwanted gaze of another. But if we refrain from taking Shapovalova’s statement at face value, it emerges as a profound commentary on the phenomenology of clothing and, by extension, the contemporary socioeconomic system upon which the fashion industry operates. For Shapovalova, digital garments are not here to represent but to replicate. But to replicate *what*? Interesting is the absence of a verb: do digital garments replicate the

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1 “Carlings: The First-Ever Digital Clothing Collection,” H.R. Watkins III, <https://www.haywoodwatkinsiii.com/digital-clothing-collection>, accessed December 7, 2021. In 2018, the Scandinavian retailer *Carlings* introduced the first digital fashion collection.

2 “Digital Clothing Is the Future of Fashion | Dell Talks with Daria Shapovalova,” Dell, YouTube video, 8:12, 2021, <https://www.youtube.com/watch?v=iKBePuTOB6U>, accessed January 10, 2023.

experience of *wearing* “physical” clothes or that of *seeing* physical clothes?

Made to be shown rather than worn, digital fashion displays the functional liberty characteristic of an aesthetic commodity. The philosopher Gernot Böhme proposes that capitalism has entered a new phase: under the “aesthetic economy,”<sup>3</sup> the value of commodities extends beyond their physical utility or monetary worth. Aesthetic economics restructures the dichotomy of the “use value” and “exchange value,” triangulating them in service of an independent utility metric: the “stage value.”<sup>4</sup> Under this metric, the aesthetic properties of a product no longer exist in *addition* to its ability to satisfy primary needs, but function towards “the staging, the dressing up and enhancement of life.”<sup>5</sup> Observing that the outward presentation of commodities is emancipated from their material function,<sup>6</sup> Böhme refers to the study of atmospheres as engaging in “poetic phenomenology” – the study of how appearances come to be.<sup>7</sup> Böhme’s phenomenological investment in the operation of aesthetic commodities aligns convincingly with Shapovalova’s experiential framing of digital fashion.

For Böhme, the stage value of an aesthetic commodity arises from its *atmosphere*. Understood as the “something more” arising from aesthetic encounters, atmospheres are by definition “intangible” and “indeterminant.”<sup>8</sup> As elusive as atmospheres are, they can nevertheless be theorized at the sites of their production: aesthetic laborers have long engaged in the skillful manipulation of materiality – the outward appearance of matter – to create and intensify the atmospheric presence of aesthetic commodities.

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3 G. Böhme, *Critique of Aesthetic Capitalism*, trans. E. Jephcott (Milan: Mimesis International, 2017): 20.

4 *Ibid.*

5 *Ibid.*

6 G. Böhme, *The Aesthetics of Atmospheres*, ed. J.P. Thibaud (Oxon: Routledge, 2017): 144.

7 *Ibid.*: 33.

8 *Ibid.*: 29; 30.

While “pure aesthetic materials assume we won’t handle or touch them,”<sup>9</sup> they nevertheless touch and move us emotionally.<sup>10</sup> Bohme’s formulation of atmosphere complicates the reading of digital fashion as a testament to the dematerializing effect of the capitalist economy on material relations and social life.<sup>11</sup> When all that is solid melts into air, the air becomes charged with affective presence and sensory impressions – it becomes an atmosphere.

Given the nonphysical nature of virtual garments, how exactly does digital fashion engage in the production of atmospheres? Scholarships in new media studies and affect theory converge on their emphasis on embodiment as central to the study of aesthetic mediums. Informed by theories of embodied perception stemming from philosophers such as Bergson and Merleau-Ponty, new media scholars have challenged the “immaterial” ontology of virtual technologies.<sup>12</sup> Similarly, affect theorists foreground the porous boundaries between sensory modalities and gestures toward the primacy of hapticity in visual encounters.<sup>13</sup> Together, these studies provide additional methodological tools to investigate the materiality of virtual garments.

This essay traces digital fashion’s atmospheric production across three sites of its exhibition: the e-commerce website, social media, and the runway show. In the first section, I examine the proliferation of elements – specific forms of materiality such as water – in digital garment designs. Drawing from Giuliana Bruno’s work, I introduce the concept of “elemental surface” as a representational technique utilized by virtual garments to enhance their

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9 Ibid.: 146.

10 Ibid.: 97.

11 G. Simmel, *The Philosophy of Money*, ed. D. Frisby (London - New York: Routledge, 2004): 150.

12 B. Brown, “Materiality,” in W.J.T. Mitchell, M.B.N. Hansen, eds., *Critical Terms for Media Studies* (Chicago - London: The University of Chicago Press, 2010): 49-63; W. Bao, *Fierce Cinema: The Emergence of an Affective Medium in China, 1915-1945* (Minneapolis: University of Minnesota Press 2015).

13 E. Kosofsky Sedgwick, *Touching Feeling: Affect, Pedagogy, Performativity* (Durham: Duke University Press, 2006).

environmental presence. In the second section, I explore how the digital imposition of virtual garments alters the background-foreground relationship of existing photographs, from which the elemental surface emerges as an index for the sensation of vitality and liveliness. The operation of hapticity and vitality collides in the third section. By analyzing digital garments as they appear in an animated advertisement, I contend that elemental surface mobilizes contemporary anxieties surrounding the “natural” environment in service of its construction of an affective milieu.

In the seminal essay, “The work of art in the age of mechanical reproduction,” Walter Benjamin attributes the demise of aura to the rise of technologies of reproduction, such as photography and film.<sup>14</sup> Made available for mass distribution and consumption, the artwork is cut off from the ritualistic contexts of its exhibition and dispossessed of its unique presence. Benjamin’s prophetic insight into the elevated importance of an artwork’s public presentability directly anticipates the domination of “staging value” mandated by aesthetic capitalism. Yet, for Böhme, the mass circulation of aesthetic productions is accompanied by the manipulation and intensification of their presence rather than their depreciation and demise. How might we approach this generative tension? Digital fashion, by demonstrating the logic and operation of stage value to its extreme, is a good place to begin.

### **The web interface: atmosphere and hapticity**

Digital fashion design is not contingent upon the market availability of raw materials, nor is it constrained by the physical attributes of specific fabrics. With the recent

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14 W. Benjamin, “The work of art in the age of mechanical reproduction,” trans. H. Zohn, in H. Arendt, ed., *Illuminations: Essays and Reflections* (New York: Schocken Books, 1969): 217-251.

integration of Adobe Substance to CLO Virtual Fashion,<sup>15</sup> designers can manipulate the material properties of existing virtual fabric available in online databases, or create a virtual surface entirely from scratch. Roei Derhi, a Berlin-based digital fashion designer, describes the fabric selection for digital garments as “limitless.”<sup>16</sup>

Despite the wide range of fabric selections made possible by digital simulation software, digital fashion designers have demonstrated a particular affinity to the elemental. The classical Greek elements – earth, water, fire, air – have been cited as the inspiration for a great number of digital fashion collections, such as that of James Mack and 2WB.<sup>17</sup> Simply entering the keyword “water” yields over 200 searches among the 2000 articles of clothing in the DRESSX database, with results ranging from digital tops, dresses, and earrings.<sup>18</sup> Elements, according to the media scholar Nicole Starosielski, are “defined by their roles in composition.”<sup>19</sup> Understanding elements as constituting parts extends their scope to encompass other specific forms of materiality, such as electricity, botanics, and metal – images similarly popular for digital fashion designers. Given that the elemental orientation of digital garments does not correspond to trends in the physical fashion industry, its medium specificity serves as a generative avenue to begin our inquiry into the materiality of digital fashion.

“Neon Pillow” (Fig. 1) is a garment designed by May Ka. Consisting of a padded jacket worn over a

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15 “CLO Virtual Fashion Welcomes Substance by Adobe, Jeanologia, and ColorDigital Integrations to CLO 6.0,” *Businesswire* (November 11, 2020), <https://www.businesswire.com/news/home/20201111005772/en/CLO-Virtual-Fashion-Welcomes-Substance-by-Adobe-Jeanologia-and-ColorDigital-Integrations-to-CLO-6.0>, accessed January 10, 2023.

16 R. Derhi. Interviewed by the author. November 2021.

17 “James Mack: TERRA MOTUS,” DRESSX, [https://dressx.com/products/james-mack-terra-motus?\\_pos=1&\\_sid=2fb6573d9&\\_ss=r](https://dressx.com/products/james-mack-terra-motus?_pos=1&_sid=2fb6573d9&_ss=r), accessed December 10, 2022; “2WB Artemis,” DRESSX, [https://dressx.com/products/2wb-003?\\_pos=6&\\_sid=ca632080c&\\_ss=r](https://dressx.com/products/2wb-003?_pos=6&_sid=ca632080c&_ss=r), accessed December 10, 2022.

18 “DRESSX search for ‘water’,” DRESSX, <https://dressx.com/search?q=water>, accessed January 15, 2022.

19 N. Starosielski, “The elements of media studies,” *Media+Environment* 1, no. 1 (2019) <https://doi.org/10.1525/001c.10780>.

knee-length dress, the garment is rendered in a single hue of sea glass blue. Its pliable, creased underlayer contrasts texturally with the smooth voluminous shoulder panels. Yet, the airy silhouette is softened by the drapery's crinkled tips and deflated hemlines. A thin sheet of puffer insulator folds into a skirt with a simple side slit. The fabric combines the plasticity of polyester with the reflective glare of satin. Not only does the digital textile resemble existing fabric, the specific details of its seams and patchwork are also meticulously rendered.



Fig. 1. *The Neon Pillow*, May Ka, <https://dressx.com/collections/may-ka/products/total-neon-pillow>, accessed January 15, 2022.

Prior to the popularization of digital garments, the fashion industry has already become increasingly dependent on *haptic technologies* – “computational systems and applications aiming to artificially reproduce the sense of touch.”<sup>20</sup> With the rise of online fashion retailing, clothes were made available for purchase on e-commerce websites

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20 L. Cantoni, M. Ornati, “Fashiontouch in e-commerce: an exploratory study of surface haptic interaction experiences,” in F.H. Nah, K. Siau, eds., *HCI in Business, Government and Organizations*, vol. 12204 (Cham: Springer, 2020): 493-503, 494 [https://doi.org/10.1007/978-3-030-50341-3\\_37](https://doi.org/10.1007/978-3-030-50341-3_37).



and social media; the physical constraints placed by the COVID-19 epidemic lockdowns further encouraged fashion stores to migrate to online platforms.<sup>21</sup> While devices such as the touch screen and the mouse enabled the simulation of physical touch, the two-dimensional affordances of mobile and laptop screens generated the need to simulate tactility through visualization technologies. “You can wear fire, you can wear lightning, those things are done with the same sense of fashion – what kind of fire? Wings or glitter?” asks Derhi,<sup>22</sup> gesturing to the importance of textural details in the rendering of digital garments. The “limitless” potential of fabric selection does not translate to their freedom from perceptual constraints.

In addition to the employment of visualization technologies, digital fashion designers have turned to representational and narrative techniques to enhance the hapticity of digital garments. Freed from the need to resemble existing fabric yet striving to visually simulate tactile surfaces, digital garments self-knowingly plunge into the elemental. On the website of DRESSX, the first and biggest retailer of digital fashion clothing, each garment is accompanied by a designer’s statement. May Ka’s description of her design reads as follows:

This bubble put May Ka to sleep. She felt her feet were going towards something new, but her footsteps were inaudible. Falling into the deep water. Will she be able to breathe? The water is not transparent, but she have never seen so clear until now [sic].<sup>23</sup>

Ka describes the inspiration behind her piece as the pillow that accompanies her to sleep, whereupon the act of dreaming resembles “falling into deep water.” When viewed

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21 Ibid.

22 R. Derhi, Interviewed by the author. November 2021.

23 “Ma Ka: Abstract Rose,” DRESSX, [https://dressx.com/products/abstract-rose?\\_pos=57&sid=ac38fecdf&\\_ss=r](https://dressx.com/products/abstract-rose?_pos=57&sid=ac38fecdf&_ss=r), accessed January 10, 2021.

with the imagery of water in mind, the materiality of the digital garment takes on a new dimension. The reflective fabric evokes the placid surface of a lake on a sunny day. The softness of the underlayer now takes on the fluidity characteristic of liquid as a state of matter. The sagging form of the drapery gestures towards the downward haul of gravity as one sinks into the water, just as the airy silhouette connotes a state of buoyancy—an opposing movement that casts the body in a state of suspension. As an existing substance, water brings to mind a particular combination of physical attributes. When Ka evokes the element of water to describe the experience of wearing the dress, specific visual details of the garment converse with each other, take on additional meaning, and cohere into a tangible surface. After all, what can evoke material presence better than the constituting units of matter itself?

The technology of clothes simulation has centered around the visualization of “surfaces,” a word that permeates the field of textile engineering.<sup>24</sup> Rather than describing the materiality of digital fashion as made up of elemental images, it is more suitable to understand its composition as an “elemental surface.” The phrase might appear oxymoronic at first sight. Whereas elements are by nature fundamental and deep-seated, “surface” are merely skin-deep. The media scholar Giuliana Bruno challenges dismissive readings of surface as ornamental and superficial, turning instead to surface as a generative conceptual framework to engage with the materiality of images: “Surface matters in the fabrics of the visual, for it is on the surface that textures come alive and the ‘feel’ of an aesthetic encounter can develop.”<sup>25</sup> The phrase “‘feel’ of aesthetic encounter” dovetails with Böhme’s formulation of atmosphere as the defining characteristic of aesthetic production. It is at the interface of surfaces that the atmosphere becomes sensible. Viewed in this light,

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24 P. Volino, N. Magnenat-Thalmann, *Virtual Clothing: Theory and Practice* (Cham: Springer, 2000).

25 G. Bruno, “Surface encounters: materiality and empathy,” in D. Martin, ed., *Mirror-Touch Synesthesia* (Oxford: Oxford University Press, 2017): 107-125, 118.

the invocation of elements emerges as a representational – or, in Böhme’s words, “presentational” technique through which virtual garments mobilize our prior conceptions of matter to generate a greater sense of environmental presence.

To attend to surfaces is to engage with media as environments. In her study of early Chinese cinema, the media scholar Bao Weihong describes *affect* as the “platform/interface of experience produced by media technology and media aesthetic in interaction with the perceptual subjects.”<sup>26</sup> In this sense, affect does not designate any singular medium or sensory modality, but instead constitute a condition of mediation that envelops individuals and machines and redraws their intimate boundaries. In Ka’s description, water envelops the dreamer just as the digital garment encloses the wearer. Water becomes an intermediary substance through which the dreamer confronts her “fears and anxieties” and sees the world with heightened lucidity. Surfaces “hold affect in its fabric” and enable “the passage of empathy,” writes Bruno.<sup>27</sup> When beckoned to interact with the body and its surroundings, the environmentalizing tendency of the elemental surface is further dramatized. In the next section, I situate Ka’s garment in the context of its intended function: to be worn and displayed by the human body.

### **The DF image: atmosphere and vitality**

Digital garments are sold digitally and dressed digitally. To wear a digital garment is to superimpose its form onto an existing photograph with the help of graphic engineering technologies. This procedure is accomplished through the use of “collision detection,”<sup>28</sup> a computation technique that simulates the points of contact between the virtual fabric and

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26 W. Bao, *Fiery Cinema: The Emergence of an Affective Medium in China, 1915-1945*: 12.

27 G. Bruno, “Surface tension, screen space,” in S. Saether, S. Bull, eds., *Screen Space Reconfigured*, (Amsterdam: Amsterdam University Press, 2020): 35-55, 28.

28 P. Volino, N. Magnenat-Thalmann, *Virtual Clothing*: 6.

the surrounding objects. Despite having little effect on the appearance of the virtual garment as an independent entity, the importance of collision detection becomes readily apparent when we examine the entirety of the digital fashion image (hereon referred to as the DF image).

In Fig. 2, shadows enable a dialogue between the wearer's body and the virtual garment. The bottom rim of the dress projects its silhouette on the thighs of its wearer, asserting itself as a material surface that receives the light in place of the wearer's skin. Shadows project an entity's image upon a foreign surface. By insisting on its ability to rechannel the light, the dress appears under the same sunlight as the body. In the lower right corner of the image, the shape of the body's shadow takes on the silhouette of the garment. Not only does the garment envelope the wearer, it environmentalizes the body to converse with the soft, chilly grass on a winter morning.



Fig. 2. The Neon Pillow purchased from DRESSX, Cambridge, December 2022 (photographed by the author). January 15, 2022.

The digital reflects light just as it displaces light. Under the piercing sun, the dress' monochromatic surface takes on a new life. No longer enveloped by solid hues of gentle blue, the garment now radiates in a purple glow marked by overexposed highlights. Hints of green make their way to the outer edges of the garment, gradually intensifying as they approach the lawn and foliage in the background.

Through the skillful manipulation of shadows and reflection, the DF image is no longer a replica of the original photograph with the addition of the digital garment. Rather, it strives toward the overarching reality of the indexical and causally affirms the existence of the constellation it depicts.

Given that the staging of the digital garment implicates the entire photographic image, digital fashion's concern with visual congruency manifests prior to the creation of the DF image. Clicking into the tab "How to Wear" on the DRESSX website, an alternative title immediately appears: "Choose the right picture: recommendation for receiving the best photo looks." The requirements for the photo fall under four groups: natural light, fitted clothes, high quality (photograph), and uncovered parts. While the expectation for compact clothing pertains to the appearance of the body, the demand for natural lighting concerns the environmental setup.<sup>29</sup> In an earlier version of the webpage, the list also asked the buyer to locate themselves relatively close to the camera to ensure "less background."<sup>30</sup> Digital fashion demands from the wearer not only a body but a context, where the physical environment becomes an integral part of the process of "wearing" the clothes.

Clothing is external to the body yet an extension of the body. It is at once the interface upon which the body and the external world come into contact, but also

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29 "How to wear DRESSX and digital fashion," DRESSX, <https://dressx.com/pages/help>, accessed January 15, 2021.

30 Ibid.

the veil that separates the body from its immediate surrounding. This dynamic is perfectly captured by Emanuele Coccia, “[The dress] does not act directly upon our own anatomical body or the media that surround it, but rather it incorporates extraneous fragments of the world, foreign bodies through which our self is made to appear.”<sup>31</sup> Alexander Knight, a London-based digital fashion designer, affirms this statement through his description of pockets:

It brings me joy to see something crazy and then see the details. Like when you see a Versace evening gown with a pocket, and the model walking down the runway with their hands in the pocket. I guess it gives it life. Digital garments can have a cold, static, and unlivable quality to them. Giving it these details gives it life.<sup>32</sup>

Knight does not employ the rhetoric of realism, describing the ideal of digital garments instead as a state of aliveness. Serving as a container for not only the body but also parts of an external world, the pocket signifies a garment’s potential to enter into relationships with others. Having a pocket allows digital garments to make a promise of everyday companionship: the wearer’s hand, keys and wallet, a bus ticket, a crumpled piece of candy wrapper. In doing so, pockets endow the garment with “life.” To simulate the experience of wearing physical clothes entails more than appearing unedited; it demands no less than to situate garments alongside the living so that they in turn take on a life of their own.

Read this way, the DF image reaches beyond the synthetic towards the additive. The color of the garment is more vibrant than the skin of the wearer, and its form more dynamic than the posture of the body it adorns. The difference in luminosity and animacy is not only one of

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31 E. Coccia, *Sensible Life: A Micro-Ontology of the Image*, trans. S.A. Stuart (New York: Fordham University Press, 2016): 28.

32 A. Knight. Interviewed by the author. November 2021.

quantity but quality: the resolution of the dress is decidedly higher than that of the original photo. The virtual garment creates a unique region of clarity, ushering forth a sense of saliency impossible to be captured by a digital camera from the same distance away. The elemental surface steps forward in an outward radiance, endowing an otherworldly vitality to the concrete and ordinary. The seamless photographic overlay creates an image of pictorial rupture – not from a sense of visual incongruity but, quite to the contrary, the hypersensitivity between the figure and ground. Similar to the pocket, the digital garment’s ability to respond to the body and the environment not only serves to conjure a realistic image, but one that feels convincingly and dramatically alive.

The language of life and liveliness permeates Böhme’s theorization surrounding aesthetic commodities. Describing the perceptual effect of atmospheres, Böhme writes, “the establishment of a world of images on the surface of reality, or even independently of it, may well serve the intensification of life.”<sup>33</sup> The function of aesthetic commodities is “made of their attractiveness, their glow, their atmosphere: they themselves contribute to the staging, the dressing up, and the enhancement of life.”<sup>34</sup> The perceptual pattern and affective construction of digital garments relocate Böhme’s invocation of “life” from the general condition of living to the immediate *sensation* of vitality. The elemental surface of digital fashion is not only elemental because it evokes hapticity through the portrayal of specific forms of materiality, but also because it endows a fundamental feeling of liveliness to the body it claims to envelop.

The reciprocity between hapticity and vitality has been evoked by Bruno when she describes the surface as the site in which “textures come alive.”<sup>35</sup> In the

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33 G. Böhme, *The Aesthetics of Atmospheres*: 199.

34 G. Böhme, *Critique of Aesthetic Capitalism*: 21.

35 G. Bruno, “Surface encounters: materiality and empathy:” 118.

next section, I examine digital garments as they appear in a virtual runway animation in order to further excavate the mode of embodiment enacted by the elemental surface of digital fashion.

### **The virtual runway: atmosphere and embodiment**

A silver parka comes to life within the first three seconds. An orange thread slithers into the right-hand sleeve, followed by the contraction of the backside padding. As the full parka comes into view, additional strands fly into the frame, endowing form to an otherwise slackened figure. With its arms outstretched, the parka inhales for the first time with the simultaneous compression of its seam lines – rapidly yet unfalteringly assembled almost as if by its own will. A single decisive zip renders the garment upright, and a hood pops into place. The resurrection is complete.

Such was the opening sequence to a commercial on digital fashion.<sup>36</sup> The creative team, not so subtly named “ITSALIVE,” offers us a glimpse into the worldbuilding of industry. As the virtual garment appears increasingly alive, the body and its surroundings take on an inert and lifeless quality. This perceptual pattern, already evident in the DF image, is further dramatized by the advertisements and runway shows released by the digital fashion industry.

As the animation progresses, flame emanates from the parka just as the music picks up, unleashing dynamic dashes of green and silver light that illuminates the dark background. Just as the parka begins to dance, a satin jumpsuit walks up to the parka and unveils its head mask. A moment of revelation follows: there was nothing

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36 “Digital Clothes Production | Virtual Wear Development | Digital Fashion,” ITSALIVE, YouTube video, 0:58, 2022, <https://www.youtube.com/watch?v=zDAsRGOqx0o>, accessed January 10, 2023.



underneath. What we had assumed to be a mannequin has been a hollow void all along.

In a sense, physical runway shows have become “digital” decades before the rise of digital fashion. With the rise of Instagram and other forms of digital media platforms, the clothing commodity is staged with its after-life as a photograph or short video in mind.<sup>37</sup> One of the most notable impacts on fashion photography, as noted by Silvano Mendes, was the elevated importance of runway scenography. A runway show constitutes an intermedial event, and its success depends on the close collaboration between fashion designers, stage designers, architects, and photographers.<sup>38</sup> On the other hand, just as digital garments are made from pixels rather than textiles, digital fashion shows prefer computer animation over live-action footage. Rather than employing specific staging technologies such as fog machines or lighting equipment, digital fashion commercials employ 3D animation to portray the product, its wearer, and the surrounding. In doing so, the aforementioned revelation becomes especially jolting and unsettling, as the body’s absence renders it virtually indistinguishable from the background.

For the philosopher Hans Jonas, the human embodiment is characterized by the simultaneous experience of the body as a subject for self-invention and an object for self-scrutiny.<sup>39</sup> While the dynamic interplay between this dual perspective has enacted highly divergent modes of embodiment across temporal and cultural geographies, inherent to the human experience is this generative tension between the first- and third-person perspective. Joanne Entwistle, drawing from Merleau-Ponty’s

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37 S. Mendes, “The instagrammability of the runway: architecture, scenography, and the spatial turn in fashion communications,” *Fashion Theory* 25, no. 3 (2019): 311-338, <https://doi.org/10.1080/1362704X.2019.1629758>.

38 Ibid.

39 H. Jonas, *The Phenomenon of Life: Toward a Philosophical Biology* (New York: A Delta Book, 1966): 186-187.

phenomenological approach to embodiment, explores how this dual perspective of the body is evidenced and enacted by the act of dressing: “the experience of dress is a subjective act of attending to one’s body and making the body an object of consciousness and is also an act of attention *with* the body.”<sup>40</sup> The existence of clothing, especially in its ornamental context, is not only a product of but the active site upon which the body functions, according to Bernadette Wegenstein, as the “medium for experience itself.”<sup>41</sup>

Digital garments relocate the site of our dual perception from the body to its representation by the digital image –already when the body has become an object of its own perception, whether in a mental image of ourselves posing in front of the camera, or in the photomontage prepared for social media. “Contemporary technoscience is in a unique position to exploit this phenomenological convergence of first- and third-person perspectives,” writes Wegenstein.<sup>42</sup> The word “exploit” – connoting the intentional instrumentalization and manipulation of fashion – precisely gets at the power of digital fashion: the digital garment separates and redistributes the dual perspectives along a temporal axis – our attention *with* our body is fated to precede our attunement *to* our body.

And so, we watch the two headless figures dance to their own rhythm. When the jacket slips off from the satin jumpsuit, light directly passes through the regions uncovered by the garment, leaving a disembodied arm that nevertheless propels the dancer into the air. As the body fades into the dark space of projection, what remains is the outward radiance of the elemental surface. Our frisson of unease is reframed as an experience of wonder and

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40 J. Entwistle, *The Fashioned Body* (Cambridge: Polity Press, 2015): 118.

41 B. Wegenstein, M.B.N. Hansen, “Body,” in W.J.T. Mitchell, M.B.N. Hansen, eds., *Critical Terms for Media Studies* (Chicago-London: The University of Chicago Press, 2010): 21.

42 Ibid.

enchantment by the closing message: “We are the future. Wear the future.”<sup>43</sup>

Characterized by seasonal change and stylistic variation, the fashion industry actively mobilizes future-oriented rhetoric. Yet, digital fashion offers a specific image of the future. In the final acts of the animation, the satin jumpsuit leaps and twirls amidst the fleeting background: the sunrise over a desert, snow-capped mountains, a blossoming flower, great waves of the ocean, thunder, clouds, the atmosphere of the earth seen from space. Marketing products made of code instead of cotton, the digital fashion industry brands itself as a sustainable solution to the perils of climate catastrophe. Rather than interrogating the patterns of consumption that underlie over-extraction and waste, the digital fashion industry consistently evokes images of nature in celebration of the triumph of life.

“The eternity of art becomes a metaphor for the eternity of the soul, the vitality of trees and flowers become a metonymy of the vitality of the body...”<sup>44</sup> Umberto Eco’s description of sculptural replicas in California graveyards possesses strange resonances with the internal logic of digital fashion. Referring back to Starosielski’s definition, elements are specific materialities that constitute our ecological conditions. In the animation, it was precisely a flame emanating from the parka that transformed the background from an empty cosmos to a colorful creation myth. The sense of vitality afforded by the hapticity of the elemental surface is tasked to mediate the premonition of future catastrophe and to offer a promise of humanity’s continuous livelihood.

Asserting that the aura of “historical objects” may be illustrated “with reference to the aura of natural

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43 “Digital Clothes Production | Virtual Wear Development | Digital Fashion,” ITSALIVE, 2022, YouTube video, 0:58, <https://www.youtube.com/watch?v=zDAsRGOqx0o>, accessed January 10, 2023.

44 U. Eco, *Travels in Hyperreality*, trans. W. Weaver (San Diego: Harcourt, 1986): 96.

ones,”<sup>45</sup> Benjamin depicts a meditative encounter with nature:

If, while resting on a summer afternoon, you follow with your eyes a mountain range on the horizon or a branch which casts its shadow over you, you experience the aura of those mountains, of that branch.<sup>46</sup>

Comparing the view of the distant mountain offered by Benjamin with the virtual projection of the landscape in the digital fashion concept video, digital garments indeed appear to testify to the demise of aura in our age of digital reproduction. And yet, digital fashion is similarly invested in the interplay between the natural and affective environment. To situate the phenomenal structure of “atmosphere” in dialogue with that of “aura” is to foreground the primacy of environmental perception in the history of technological mediation. By expanding the constitution of media from communicative forms to ecological conditions, elemental surfaces provide an analytic framework for eco-critique beyond the study of “nature,” focusing instead on the perceptual patterns and representational techniques through which physical and affective environments are felt, performed, and lived.

## Coda

We are familiar with the fairy tale of an emperor without clothes; now it seems as though our clothes have lost their emperors. “What we need is the digital body to be for people to wear our clothing,”<sup>47</sup> says Kerry Murphy, the

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45 W. Benjamin, “The work of art in the age of mechanical reproduction:” 5.

46 Ibid.

47 “FASHION MADE: The Future of Digital Fashion with Kerry Murphy, The Fabricant,” Product Innovation, YouTube video, 38:2, 2019, <https://www.youtube.com/watch?v=Up8B9WUoKg4>, accessed January 10, 2023.

founder of the pioneering digital fashion brand Fabricant. For Murphy, as for many others in the industry, the current coupling of digital garments and physical bodies is only a transitory phase in the field's progression toward complete virtuality. Before that day comes, holding our love and fear in its fabric, preserving the contours of our hollow form, the digital garment dances in a world without us.

As new materialisms have argued for the inherent vitality vested in all matter, Mel Y. Chen reminds us that animacy is political—the assignment of liveliness to bodies is viscerally bound to the technologies and discourse of biopower.<sup>48</sup> In the same way, as media scholars have increasingly expanded the notion of hapticity beyond physical tactility, our experience of materiality is nevertheless structured by nonneutral social relations. What is endowed with the vitality to “touch us emotionally,”<sup>49</sup> and whose life gets to be touched, staged, and enhanced? The elemental surface of digital garments reminds us that the questions of vitality and hapticity are tightly intertwined and invites us to interrogate their intersecting histories. More concretely, elemental surfaces beckon us to approach the history of elements—from its classical inception to its post-classical legacy—with an eye towards the sensationalization and environmentalization of life. It is from this vantage point that digital fashion's danger emerges alongside its allure, and our critical intervention emerges alongside constructive possibilities.

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48 M.Y. Chen, *Animacies: Biopolitics, Racial Mattering, and Queer Affect* (Durham: Duke University Press, 2012).

49 Böhme, *The Aesthetics of Atmospheres*: 97.

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