Trading Signals for Patterns and Ephemerality for Sensuality in Dance Studies

–– Jorge Poveda Yánez

(UNIVERSITY OF CALIFORNIA, RIVERSIDE).

ORCID: 0000-0002-5268-6206

–– Rory Fewer

(UNIVERSITY OF CALIFORNIA, RIVERSIDE)

ORCID: 0009-0007-2549-048X

In response to the redoubling effect of "ephemerality" in performance studies and "cloudiness" in discourses framing digital databases, this article proposes a materially-driven assessment of dance after its digitization. At the dawn of ubiquitous computing and increased avenues for the conversion of dance into computerized information, we propose a critical appraisal of the information-driven epistemology that champions the digitization of all aspects of life, including movement and creativity. As such, new technological affordances for the capture and reproduction of the dancing body are contrasted and contextualized with an emphasis on the series of re-materializations that digitization produces across bodies, devices, and choreography.

While this guiding premise of a materially-driven approach entails foregrounding the electric, mineral, hydraulic,

petrochemical, or otherwise material resources needed for the conversion of dance into data, this premise is also framed as an invitation to renew the sensorial and sensual study of data in and of itself. By epitomizing the "pattern" instead of the "signal", we suggest that sitting with the shape, contour, and trajectory of data points before trying to make sense of them could rekindle a sensual engagement with computers and their language. Capitalizing on this sensual detour for the examination of dance data is discussed as the fuel for any pivotal changes in the field, whereby simulation might cease to be the synonym for artificial and instead be recruited as the rehearsal of another real.

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The sensuality of the "body" and its alleged opposition to the intellectual life of the "mind" is a familiar argument that has shaped the field of dance studies time and again. Even though there is a long lineage of thinkers and philosophers that have displaced the world of ideas from that of embodiment since the first century BCE (Manning 188), René Descartes is recurrently blamed for splitting the mind and the body as the cardinal sin across the humanities. The pervasiveness of this alleged—while nonetheless effective—split similarly illuminates the common imaginaries surrounding digital dance as a ghostly immateriality. Against beliefs of embodiment as non-cognitive or thoughts as incorporeal, this special issue foregrounds digital dance as a form of information that can only exist thanks to its material basis. Upon being accused of having bifurcated mind and body, René Descartes himself refuted this charge in the mid-seventeenth century. Contrary to the canonical interpretations of his work, he claimed that mind and body were indeed two parts of a continuum, connected through the physiological locus of the pineal gland (Shapiro). Today, motion capture laboratories and other digitization tools can be thought of as the technological loci where dance (the "body") turns into information (the "mind"), and

to confine these two to completely different realms would thus reinstate a Cartesian split that may have never been there to begin with. Descartes lived through the emergent scientific revolution wherein "reason" was consolidated as the guiding light of the humanistic project, which in the twenty-first century has been replaced by "information". Despite these misunderstandings of Descartes or perhaps precisely because of them, contemporary scholarship from the so-called "hard" sciences as well as from the humanities agree that the production of thought is impossible without a body, and we would extend this claim to similarly argue that the circulation of digital dance is unviable without electric, chemical, and physical infrastructures. To unfold such a stance, we offer this special issue to reframe the alleged dematerialization of digital dance as a multivocal re-materialization of movement across bodies and devices. The conversion of the sensual and physical aspects of dance into information is met here through a renewal of the sensual perception of information.

The championing of "information" as the riveting engine of the "information society" serves as a Trojan horse whereby dance—as long as it is translatable into flows of data—has been reinserted into research agendas. In this way, dance triumphantly resurfaces as a fully-fledged academic subject, an ever-morphing aesthetic object, and a new commodity via its degree of transmutability into information. The re-inscription of dance in the form of data reinforces the circular epistemology of information as an overarching framework for our age, producing what it validates and validating what it produces. This risk of determinacy in the form of informational bias, however, is only the latest permutation in terms of how dance has been delimited as an epistemology. "Information", and its subsuming category of "knowledge", have circulated as value terms for years (Leach), and dance is likewise no stranger to their conceptual pull. There exists an abundance of accounts that have framed dance as "embodied knowledge", "tacit knowledge", "implicit knowledge", "know-how", or other similar formulations, even before dance met computerized environments (Barbour; Daniel; Mingon and Sutton; Pakes; Roberts; Sklar; Taylor). At the dawn of omnipresent computing and the internet-of-things, dance makes yet another schizoid-fracture as it becomes converted into data packages, ubiquitous across not only devices, avatars, robots, and flesh, but also spreadsheets, graphs, diagrams, and coded structures (Schafer).

While earlier debates contraposing the unmediated presence of a performer's body against its mediated recordings now appear tinted by a romantic fascination with the live and throbbing human presence, contemporaryscholars working at the intersection of dance and technology need to preemptively identify their own biases and fascinations. Scholars of this emerging field (or "nerds" as Sydney Skybetter puts it endearingly) possess the vigor to continue envisioning new and expansive deployments of the dancing body. Fueled by an infatuation with the malleability of the digital, one cannot deny the posthuman fantasies that have inspired their reimagining of the body—mutable and interchangeable identities, the perks and pleasures of telepresence, a world of infinite and decentralized nodes, etc. Looking retrospectively into the 1990s and early 2000s, dance and performance studies scholars became infatuated with the idea of "ephemerality", a certain alliteration around the poetics of disappearance that led to the framing of the performing arts as always at the cusp of vanishing (Schneider). Is there a way to preemptively identify the infatuations that guide contemporary scholars of dance and the digital, even in the moment we are embracing them? We may now ask a more generative question: what ideas can be put forth to foreshadow the future decades of dance's digitization?

The regurgitation of dance as information could indeed be thought of as a way for the dancing body to appeal to the dominant culture centered around information and knowledge. This operation, however, is an epistemological choice sustained by a towing infatuation. The trope of ephemerality has not effectively *disappeared*; rather, it has successfully recruited adepts from the field of information sciences too. Dance, or any other cultural practice for that matter, once turned into information is supposed to become only "a probability function with no dimensions, no materiality, and no necessary connection with meaning", a "pattern, not a presence" (Shannon qtd. in Hayles 18). The ostensible fleetingness of the informational pattern, however, remains a pervasive yet inaccurate trope of digital culture. Fantasies of organic life succinctly becoming evanescent zeros and ones that radiate across invisible waves reiterate, rather than debunk, the infatuation for ephemerality. Trusting in the digital as a funneled vision that turns bodies into immaterial patterns produces significant blind spots in the conversations surrounding the de/re-materialization of dance, and it also loses the conceptual

gravitas that the "pattern" in itself can offer as a *datum* always already material, embodied, and hence sensual.

To follow the trope of digital dematerialization is to center once more on the underlying mathematical logic or plasticity of data instead of the servers, hard drives, and hefty machinery that host it materially. Moreover, after its conversion into machine-readable data flows, dance only has the chance to circulate as such thanks to several other scaffolding systems and their very material constitution. We can think here of circuits, for instance, since "electricity is the medium of virtually all computational work today" (Pasek et al. 21). The networks that make it possible for dance-as-data to gain its expected schizoid-ubiquity are constituted of layers upon layers of new material configurations: fiber-optic cables, Ethernet copper wires, and various protocols in between (Hu xxv). Yet these mineral and petrochemical re-materializations are, more often than not, discursively displaced by the epitomized ephemerality of (dance) data. As either infatuations or metaphors, "ephemerality", "immateriality", and "cloudiness" have become potent tropes in the computer sciences and in how contemporary society organizes and understands itself (Hu xiii). Here, the (re)validation of dance through its datafication sits at the intersection of a double denial, namely that of (i) the more or less self-evident occlusion of the materiality of the fleshiness of the body, and (ii) the concurrent electric, mineral, and otherwise material infrastructures that operationalize its morphing and circulation in the form of data.

After performing an entire dance routine, a performer might be seen chugging down a glass of water. Once the underlying choreographic material of dance is transformed into data and hosted in one of the many rapidly growing data centers across the globe, it can require as many as five million gallons a day just to cool off (Hogan 3). Water sustains the body even after its digitization. Data centers like the Utah Data Center can store data at the rate of twenty terabytes—the equivalent of the entire Library of Congress—per minute (Carrol 2013 in Hogan 3) but then require staggering amounts of water for this allegedly "ephemeral", "immaterial", and "cloudy" data to remain operable. On user-facing interfaces, dance's contours and shapes are experienced as photons of light mobilized on the polished surface of screens. Through energy as an analytic, the body and its synaptic connections also emerge as a site that hosts

its own circuitry and flows of data. Manifesting as the long fibers attached to neurons called axons, the body relies on a constant flow of electrical impulses in order to control basic functions related to heartbeat, blood pressure, and breathing. Similar to how its digital instantiation is supported by software and hardware, the dancing body is also a medium whose movement is predicated on electrical flows. Viewed through the body as an electrical medium, the seeming ephemerality of data also shows its boundedness to the materiality of flesh and its circuitry.

A reversal of this double denial would be to reintegrate all of these very material aspects into the analysis of digital dance. Without rehashing the heated debate on whether or not telepresence is a form of presence (a debate productively intersected by Dann Strutt in his contribution to this special issue), what we hope to emphasize is how the apparent de-corporealizing abstraction of dance does not necessarily entail mutilation of the (human) sensorium as is commonly feared. New forms of interactivity afforded by devices and digital environments are but one example of how the sensing body continues to exist within emerging technologies. Even in the most unengaging of computational environments, these affordances can be unlocked if the informational pattern is taken as an opportunity for new sensorial experiences rather than the mere conveyor of an abstracted and immaterial message. Maybe the way computer scientists account for dance after its datafication—as volumes, densities, and patterns—can inform how analogic performances are currently being accounted for.

A pattern is an alluring form because it traces contours and shapes; it creates volumes, reiterates itself, and has a recursive impact across bodies and artifacts. Without reinvesting in a blunt positivism or reconstituted empiricism, we foreground the pattern here for it requires attention and care. There is an aesthetic appraisal due in order for the pattern to be traced. We can think here of patterns of weather, programs, water flows, dance-data, or circuits—they can all be traced and perceived. This "tracing" in itself requires a somatic mode of attention. As Thomas Csordas puts it, to trace something is to walk behind it; it requires us to squint our eyes to see where it is going, to hunch the back to closely examine its shape, or to circle around it to perceive its itinerary, as if courting it in a properly sensual way. We invoke this sensual mode of inquiry as both an

emerging affordance of the computational and a framework that can impact the field of dance at large.

Before the anthropomorphic figure is superimposed back onto data points (e.g. the ones produced through motion capture), there are opportunities for perceptual (re)formulations of what the body in movement looks like. In their contribution to this special issue, Hugh von Arnim, Tejaswinee Kelkar, and Live Noven develop at length how ableist predispositions of motion capture might surreptitiously reappear when mere patterns of the body are funneled into the signal of what a human figure should look like. This approach of sitting with the pattern and resisting the urge to turn it into a signal requires a commitment to seeing what is right in front of us and taking it for what it is without the compulsion to fit it into an ulterior, pre-established form. This stance is attuned to contemporary feminisms' recalibration of an excessively discursive and constructivist stance to a materially-driven investigation that welcomes back the sensual cue stemming from the body, including its composition and behaviors (Alaimo). Reinscribing the sensual mode of inquiry centered around the pattern in dance (in its unmediated or mediated form) implies delaying or displacing the preference to see the body as fugitive and always at the service of ulterior, yet pre-established, discursive formations. A neo-materialist recalibration of dance studies would entail spearheading the somatic, sensual, and tangible modes of inquiry that do not try to *see through* dance but see it directly in the eye. As Christopher Bryan suggests, if we keep trying to suspiciously *see through* things we will end up seeing nothing at all. This "seeing" is highlighted here not in the literal ocularcentric sense, but rather as a broader innuendo encouraging the appraisal of dance as a complete phenomenon in itself and not as a gestalt always in need of supplementation by a discursive appendix.

To focus on the pattern or the datum from a neo-materialist stance, however, can very quickly turn into universalist claims of "objectivity". Advocating for an "objective" take and the complete evacuation of the political from dance (if there even is such a thing), is an intent that continually reappears in technologically-driven fields. The seductive idea that engineers, with their pragmatic, matter-of-fact outlook, might be an omen for the "end of ideology" has circulated as a well-documented trope since the 1930s (Marx 1997, 572). Similarly, fantasies of "pure movement" uncontaminated by politics evidence

an untenable politics of decontextualizing pragmatism, also known as formalism in the field of aesthetics. And so, to maintain a sensual, materially-attuned approach to dance does not mean to advocate for an ahistorical (neo)materialism that epitomizes the immediacy of perceptual inquiry as absolute. Rather, what we want to hint at is the rediscovery of the *discovery*, as opposed to its simulation. Paul Ricœur's scholarship on the Hermeneutics of the idea of Revelation and the Hermeneutics of Suspicion is illustrative here. To follow the latter is to continue the great tradition of the masters of suspicion—Nietzsche, Marx, and Freud—in their quest to unmask *deeper* truths as always hidden behind *surface* phenomena. The resonances of such suspicion have been theorized as "paranoid readings" (Sedgwick) in critical theory and have also generated contraposing reactions, including "surface readings", in literary studies. Amidst this crossfire of readings, a question oscillates between dwelling too much on hidden social structures of domination or addressing them too little. In the aftermath, the stitching between *deep* and *surface* or macro and micro illustrates the complexities of turning a pattern into a signal.

Without falling for the low-hanging-fruit idea of the digital as the advent of a post-racial and post-gender world, we propose an approach that does not politicize dance but rather perceptually identifies the politics already enacted in its sensuous composition. Otherwise, when appraised from the hermeneutics of suspicion, dance becomes a medium that is always inscribing and inscribed by larger power forces that are suspected of invading it from the outside. This permanent suspicion of dance as a landmark of politics becomes an issue when its centering requires a suspension of sensual inquiry and a detour toward discourse. Identity, as a form of discourse mediated by language, is a recurring cornerstone in contemporary dance scholarship, centering representation as the battlefield where oppositional politics get to be played out between groups whose "interests are discreet and the[ir] difference is absolute" (Martin 10).

As opposed to an analysis that seeks for performance to be exogenously captured by the political, the sensual tracking of the pattern might render possible the imagining of another kind of politics within bodily mobilization itself (Martin 14). Here, then, politics would resurface as already in motion, not as something awaiting ignition (Martin 2) but as a force already there. If the meaning-mak-

ing potential of identity and representation relies on an immutable discreteness that is analytically "inadequate given the schizoid and intrinsically non-linear structure of advanced capitalism" (Braidotti 40), what is the import of approaching dance from the computer's eyes? A computational approach to dance allows one to visualize the political not as a *ghost* visiting the body or something that is done to bodies behind their backs (Martin 4), and thus serves as an untapped source for the emergence of new conclusions based on the body's own sensual mobilization. So far, the "ghost" and the "ghostly" have formed one of the quintessential imaginaries around technology (Chang; Kim; Warren-Crow); its always-incomplete presence mimics arguments of the body as permanently "haunted" by ideas of power as an exogenous force. Indeed, like a proper ghost, this take on power is one that never fully leaves and never fully appears, mirroring the formula of reading the dancing body as always both enacting and resisting the systems of oppression that haunt it.

We might be facing the moment to give up the ghost in the machine, and this possibility is opened up by the collapse of different temporalities afforded by new technology. Archival technologies like print, phonograph, photography, or video have advertently or inadvertently consolidated a deferral of time, a phenomenon particularly palpable in the cases of folklorism and heritage studies, whereby the subjects recorded not only feed the archive but also the melancholic economy of the past's romanticization. The crucial transformation of contemporary digitization technologies goes beyond their heightened precision for recording events—it relates to the disenchantment with the intent to capture as a form of deferral. Current motion capture (mocap), virtual reality (VR), and artificial intelligence (AI) installations and initiatives—such as those described in the contributions of this special issue—do not encapsulate the past, but rather channel its circulation into contemporary and contemporaneous expressions (Fabian qtd. in Kirshenblatt-Gimblett, "Folklore's Crisis", 283). Fundamentally, this aesthetics fulfills the collapsing of different temporalities at play, prioritizing the presentness of the (physical and digital) bodies. The mnemotechnic and capturing affordances of today, despite having more possibilities to *authentically* or richly capture the past (or maybe precisely because of this) are displacing the rubric of accuracy for those of interactivity and immersion. Perhaps we finally ran out of past (Kirshenblatt-Gimblett, "Intangible Heritage", 59), or if the past

has already caught up with us, wouldn't this then be an invitation to focus on disentangling the economic, ecological, artistic, biological, and computational dimensions of dancing in the present?

Authentically and impermeably conserving the past might be a receding project, but the sensual dimensions of digital dance are explored in **L. Archer Porter's** contribution to this issue as the affective charge of collecting and compiling NFTs (non-fungible tokens). Porter behaves like a chronologist harmonizing, on the one hand, the time of the gestures of dancers like the Chilean duo CryptoMoves and, on the other hand, the time of crypto technology. Dance here is imported into the shrine of collectability as not only a token of the commodification of an emergent economy but also as an aesthetic object of kinetic beauty sacralized by its technological stabilization. The digital dance artifact, defined by the sociality of collecting as a practice, is revealed to be grounded in the passions of collectors that undergird digital dance's circulation through processes of ownership and exchange. Porter effectively lays out the fundamentals of how the blockchain operates, what NFTs are, and how they intersect with ongoing processes of choreography gaining economic value—observations that are further problematized by the decisive and pivotal role of the collector as a tech-savvy taste-maker and value-giver for dance.

Porter's article dialogues with **Ania Catherine's** piece from the Portfolio section. Based on the artistic practice she has developed together with Dejha Ti in the artistic duo Operator, Catherine rehearses to its boiling point the surveillance we agree to be a part of as users of social media and digital technologies. The duo's work becomes a *tableau vivant* that testifies to the values and perspectives built and engrained in new digital technologies, as opposed to only relying on the mesmerizing value of the latest devices' affordances. While fleshing out the financialized ecology of rarified digital natives, the text trades the sanctity of cultural critique through its very rehearsal. The missing fleshiness of the dancing body across blockchain architectures is ushered back in by Operator in their work *Human Unreadable*, through a ping-pong of media-agnostic experimentations that jump scales from generative on-chain choreography into analog steps and back. In a second work titled *On View*, museum visitors are encouraged to take selfies next to art pieces, which sustain forms of social performativity until keeping a smile on one's face becomes

physically impossible. The invitation to endure this exaggerated version of a contemporary ritual for acquiring the cultural capital of art illustrates Operator's theatricalization and aestheticization of surveillance weaponized as a balancing maneuver—a kind of cultural homeostasis.

In his timely contribution, **Sydney Skybetter** tackles similar issues surrounding emerging technology and surveillance. He describes the inextricable links between choreography, robots, and violence, noting examples as early as ballet's use as a form of supplemental training for fencing in eighteenth-century France, and as recent as choreographic performances created for Boston Dynamics' robot police dog. Skybetter, reminding the reader that the root word of "robot" is in fact "slave", traces a pattern of how the technology fueling an ever-morphing landscape of robot dances exists alongside its military and police applications. In particular, he reveals the racist hierarchies embedded in such performances, which continually appropriate and decontextualize Black performance practices in efforts to showcase the very technologies that are weaponized as forms of anti-Black surveillance. The emerging technologies undergirding robot dances offer new instantiations within a long history of surveillance, extraction, and violence, as dance techniques, Skybetter writes, are "lifted out of cultural context and encoded at the level of software and *interface*". Such abstraction, however, often results in a loss of kinaesthetic empathy, precluding spectators from treating robots with the same level of significance they would a human body.

The choreographic interaction and potential gaps between digital technologies and human bodies are explored by **Diego Marín-Bucio** from the angle of AI. Marín-Bucio describes a performance piece in which he sought to develop a bodily-interactive AI that could collaborate with human dancers to produce performances in real time. The AI model, named Dancing Embryo, is trained on motion-capture recordings that comprise a "movement bank" from which the AI generates new movements. This contribution offers an artist's perspective on these evolving forms of collaboration, including factors such as an AI's possible level of participation, the primacy of visuality, and challenges to logical thinking presented by interacting with an AI-generated figure that may not necessarily conform to conventional gestural vocabularies. The author explores the barriers to entry in producing such work while offering a clarification

between the use of technology in performance as real co-creation versus mere high-tech puppetry. These accounts create critical distance with the widespread glamorization of new technological gadgets. Put differently, this is research and artistic experimentation that resists being mere PR for tech companies' gadgets. In this way, a double-sided distancing is played out between, on the one hand, a techno-optimism that renews the faith in a civilizatory project of modern technocracy and, on the other hand, the "classical gothic themes" that represent "technological artefact[s] as potentially threatening monstrous others" (Braidotti 3).

To reintegrate the foam from the top of the wave, bringing these opposing elements back into the same flow would imply alchemizing, for instance, the common angst about humans being replaced by machines with the issue of humans adopting the machinic. Scholar Jesse LeCavalier has described how in the context of Amazon and Walmart warehouses, for instance, humans are becoming the laboring force operationalizing robotic estimations and calculations, prompting us to consider how in daily life we are starting to process information like machines do. If the digital is characterized by thinking in fragments and chunks (Portanova 54), what do we make of the choppy, fragmented experience of doing any task these days? This special issue, which for the first time in more than forty years of *Documenta*'s history is being read completely digitally, might be competing for the attention of our readers as they are pulled in the direction of the many other banners, notifications, beeps, and vibrations generated by their multiple devices.

Another extrapolation of this techno-human enmeshment is offered in this special issue by **Nina Davies**, whose contribution, "Do you want to get hit by a car?", demonstrates that the machinic leaks into the human both cognitively and physically. From a productive redoubling of speculation and real jurisprudence, the contribution locates choreography as a defense mechanism against computer vision-infused cars. After making the reader feel at home through the familiar format of the podcast interview, Davies stitches up an eerie fictional lawsuit whose oddity resides precisely in how plausible it seems given current car automatization. Here, the fictitious car company Piasecki is being sued by the family of a victim who was hit by a self-driving car trained to identify people using data harvested from video games like *Grand Theft Auto*. In this speculative

landscape, failure to adopt the choppy and fragmented movements of a machine becomes a threat. Davies' fictional story, in which humans need to be read as a machine in order not to be hit by a car, could be summarized as the case of a signal deciding to relinquish its status to become a simple pattern. In the context of transitioning from peering technologies that look in on the body to screening technologies that try to turn the body inside out (Cherniavsky xxi), we can think of motion capture as a node where obfuscation and clarity of images recombine. If these advancements in computer vision are done without a poetic intent, the informational patterns they produce become readily available for cooptation by the very surveillance capitalism widely denounced as the force turning people into locatable data signals.

Along these lines, **Hugh von Arnim**, **Tejaswinee Kelkar**, and **Live Noven** in their contribution present a model for how the point—as a form of pattern—is worthy of staying with, instead of the bone-based approximation of the human body that is recurrently used as a signal for motion capture. The usual business of importing and superimposing a humanoid skeleton onto the harvested data can be seen as a very practical form of ableist imposition. In both, its iconographic and disciplinarian value—the preference for an anthropomorphic figure of an able body to render motion capture data—reminds the reader of the early stages of any medium or discipline, whereby its validity is always measured in terms of its capability to accurately represent reality. Before merely leaving the reader yearning for a moment when motion capture frees itself from its representational—and verisimilar—self-impositions, the authors offer a rubric for how to use the point in their proposal of "motion pointillism". The text advocates for the obfuscation of anthropocentric predispositions in the quest to discover (rather than impose) the contours and shapes of dance as the scattering of cruxes and specks wandering from bodies to screens.

This occlusion of the superimposed ableist body model and the preference for the free-standing and non-anthropomorphic point/pattern opens up the possibility for alternative forms of embodiment. **Dan Strutt's** contribution conceptualizes this as a form of "Alien Embodiment". Digital avatars that do not necessarily correlate to our actual anatomical articulations advance the premise of mocap liberating itself from its representational burden to instead boost

dance's inherent propensity for kinaesthetic metaphorism. Instead of feeding the techno-political forces of capture and control that demand accuracy, locatability and identification, Strutt focuses on how alien embodiments, on top of drifting away from those logics, allow for sensual philosophical exploration—that is, philosophy as a form of thought production rooted in the body. This article maps how in the very estrangement of alien embodiment there is leeway for bodily sensations to turn into precepts that, in turn, form the raw material for conceptual elaborations. Parallel to motion pointillism's avoidance of superimposing an anthropomorphic figure onto data points, Strutt eludes the reduction of these altered embodied experiences to previously known thoughts.

Ioulia Merouda, **Adriana Parente La Selva**, and **Pieter-Jan Maes** offer a contribution detailing their experience with digitizing the training techniques of the Odin Teatret, in which digital spaces are reframed for embodied experimentation as Deleuzian planes of immanence. Their emphasis on the *event(ness)* of virtual reality directly intersects the discussion previously introduced on the rediscovery of *discovery*, as a way to avoid merely replicating knowledge and instead investing in its reactivation through latitudes, longitudes, speeds, and affects. The possibility opened up by the authors and artists behind the project explored is to allow for the collapse of past and present temporalities into one vivid event where users get to sweat along/through the knowledge of the Odin Teatret as a self-actualizing plane of immanence. The contribution outlines the opportunities and perils of the transdisciplinary entanglement of the computational, design, and theatrical while steering dance into its digital double.

In a similar vein, **Laura Karreman** and **Nanna Verhoeff** explore the extensions of embodiment afforded by *Acts of Holding Dance*, a an art series created by Wendy Yu that features several projected figures breakdancing. Treating this work as a choreographic object to be thought through, the authors offer the three concepts of *capturing*, *tracing*, and *figuring* in exploring the reorientations it provides to spectators. The authors identify new forms of relationality, added kinaesthetic and interpretive layers, and disorienting bodily representations, while also noting the risk this performance runs in potentially losing legible elements of breakdance as it becomes abstracted from its original context and into digital form. What stands

out from this contribution is its generative method that combines thinking *about* dance and technology and thinking *with* dance and technology. In this way, the argumentation jumps scales between dance, projection, architecture, discourse, and public space, tracing conceptual interconnections throughout. The editors of this special issue interpret these argumentative leaps as a form of transpositions that can lead to alternative ways of knowing. According to author Rosi Braidotti, "transposition" is a theory that "offers a contemplative and creative stance that respects the visible and hidden complexities of the very phenomena it attempts to study" (6).

Another transposition traced across not only design, the computational, and the theatrical, but also the financial, appears in a contribution from **Jorge Poveda Yánez**. In this contribution, "liquidity" is taken as a token to trace the several transformations and transactions that dance movements suffer while they migrate across devices, bodies, and wallets. By zigzagging between the (very) analog liquids intervening in the performance of dance—like synovial fluid, sweat, and endocrine secretions—and the digital circulation of dance data as it generates unparalleled income for video game companies, the essay ponders the analytical traction of "liquidity" to approach dances on the screen. Taken as an analytic device, "liquidity" allows here to account for the several layers of de/re-materialization that dance undergoes as motion capture data, video game emotes, and a theatricality that accompanies the ultimate transformation of dance-data as liquid income.

In her contribution, **María Firmino-Castillo** highlights the artistic, philosophical, and ethical labor of *muxe* ("feminine man") and *Binnizá* (*binni*, people; *zá,* cloud)[1] artist Lukas Avendaño to reveal how the oft-assumed preeminence of "stable" databases over "compostable" bodies is neither self-evident nor pragmatically real when it comes to the sustainment of memory. The only real chance for the autopoietic endurance of memory, according to the author, resides in the trans-corporeal transmission between and across multiple bodies. The notion of the "ouroboric" discussed in this paper consolidates the conundrum of the self-consuming and self-birthing nature of matter as a sequencing of contradicting and iterative enfoldings and unfoldings. As the dialogic format of this contribution discloses, oscillation is offered as a device that troubles the false dichotomy between the virtual and real, causing the reader to likewise oscillate

between conventional understandings of analog/digital technology and alternate ontologies exemplified by a self-replicating *ouroboros* and multiplicitous *muxeidad*.

The real and the unreal (fictional but not necessarily digital) give birth to each other in intricate, ouroboric, and paradoxical ways. However interconnected, the digital and the analog operate in different registers. As Firmino-Castillo aptly reminds us, the digital needs the analog to exist but the analog exists independently. The digital has the potential for expansion, exaggeration, and generative duplicity, but it is only in its return to the analog that a different rubric might emerge for the "real" as the result of the friction between the two and not the substitution of one for the other. The disorientation of dancing with dimensionless *points,* the uncanniness of *alien embodiments*, and the perplexity of dance-data adopting the *liquid* circulation of currency are all offered here not as challenges to be overcome, but rather as the field for something different to appear—that is, for the appraisal of what difference *difference* can make, in the double sense of that which deviates from what is dominant and the expansive multiplicity of human expression that demands adjudication and decision (Martin 2). If the plasticity of computer-generated environments and settings is not fetishized as ulterior, teleological, and discontinuous, but rather as that which is expected to recur and return, then *simulation* might cease to be the synonym for "artificial" and instead be recruited as the rehearsal of another real. Homing and nesting this current segment of technology as it continues to take its own course, we hug it sensually, waiting to host it again sometime in its newly reconstituted material forms.

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Works Cited

Alaimo, Stacy. "Trans-Corporeal Feminisms and the Ethical Space of Nature." *Material Feminisms*, edited by Stacy Alaimo and Susan Hekman, Indiana University Press, 2008, pp. 237-264.

Barbour, Karen. *Dancing Across the Page: Narrative and Embodied Ways of Knowing*. Intellect, 2011.

Braidotti, Rosi. *Transpositions: On Nomadic Ethics*. Polity Press, 2006.

Bryan, Christopher. "The Hermeneutic of Suspicion." *Listening to the Bible: The Art of Faithful Biblical Interpretation,* edited by Christopher Bryan and David Landon, Oxford Academic, 2014, pp. 23-39.

Chang, Vanessa. "Catching the Ghost: The Digital Gaze of Motion Capture." *Journal of Visual Culture,* vol. 18, no. 3, 2019, pp. 305-326.

Cherniavsky, Eva. *Incorporations: Race, Nation, and the Body Politics of Capital*. University of Minnesota Press, 2006.

Csordas, Thomas. "Somatic Modes of Attention." *Cultural Anthropology*, vol. 8, no. 2, 1993, pp. 135-56.

Daniel, Yvonne. *Dancing Wisdom: Embodied Knowledge in Haitian Vodou, Cuban Yoruba, Bahian Candomblé*. University of Illinois Press, 2005.

Hayles, Katherine. *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics*. The University of Chicago Press, 1999.

Hogan, Mel. "Data Flows and Water Woes: The Utah Data Center." *Big Data & Society,* vol. 2, no. 2, 2015, pp. 1-12.

Hu, Tung-Hui. *A Prehistory of the Cloud*. The MIT Press, 2015.

Kim, Eugenia S. 'Ghost in the virtual reality: Translating the human essence with motion captured dance'. *Proceedings of EVA London 2019*, BCS 2019, pp. 250-255. Learning and Development.

Kirshenblatt-Gimblett, Barbara. "Folklore's Crisis." *Journal of American Folklore*, vol. 111, no. 441, 1998, pp. 281–327.

---. "Intangible Heritage as Metacultural Production." *Museum International*, vol. 56, no. 1-2, 2004, pp. 52-6, doi:10.1111/j.1350-0775.2004.00458.x.

LeCavalier, Jesse. *The Rule of Logistics: Walmart and the Architecture of Fulfillment*. University of Minnesota Press, 2016.

Leach, James. "Making Knowledge from Movement: Some Notes on the Contextual Impetus to Transmit Knowledge from Dance." *Transmission in Motion: The Technologizing of Dance*, edited by Maaike Bleeker, Routledge, 2017, pp. 141-154.

Manning, Erin. *Politics of Touch: Sense, Movement*, *Sovereignty.* University of Minnesota Press, 2006.

Martin, Randy. *Critical Moves: Dance Studies in Theory and Politics.* Duke University Press, 1998.

Marx, Leo. "'Technology': The Emergence of a Hazardous Concept." *Social Research*, vol. 64, no. 3, 1997, pp. 965-988.

Mingon, McArthur, and John Sutton. "Why Robots Can't Haka: Skilled Performance and Embodied Knowledge in the Māori Haka." *Synthese*, vol. 199, 2021, pp. 4337-4365.

Pakes, Anna. "Original Embodied Knowledge: the epistemology of the new in dance practice as research." *Research in Dance Education*, vol. 4, no. 2, 2010, pp. 127-149.

Pasek, Anne, et al. *Digital Energetics*. University of Minnesota Press, 2023.

Portanova, Stamatia. *Moving without a Body: Digital Philosophy and Choreographic Thought*. The MIT Press, 2013.

Roberts, Rosemarie A. *Baring Unbearable Sensualities: Hip Hop Dance, Bodies, Race, and Power.* Wesleyan University Press, 2021.

Schafer, R. Murray. *The Tuning of the World*. Knopf, 1977.

Schneider, Rebecca. *Performing Remains: Art and War in Times of Theatrical Reenactment*. Routledge, 2011.

Sedgwick, Eve Kosofsky. *Touching Feeling: Affect, Pedagogy, Performativity*. Duke University Press, 2003.

Shapiro, Lisa. *The Correspondence between Princess Elisabeth of Bohemia and René Descartes.* Chicago University Press, 2007.

Sklar, Deidre. "Can Bodylore Be Brought to Its Senses?" *The Journal of American Folklore*, vol. 107, no. 423, 1994, pp. 9–22.

Taylor, Diana. *The Archive and the Repertoire.* Duke University Press, 2003.

Warren-Crow, Heather. "Before and After Ghostcatching: Animation, Primitivism, and the Choreography of Vitality." *Screen Bodies: An Interdisciplinary Journal of Experience, Perception, and Display*, vol. 2, no. 1, 2017, pp. 22-44.

Notes

1 Binnizá is the language and self-ascribed name of a community in the Isthmus of Tehuantepec, Oaxaca, Mexico otherwise known as Zapotec.