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REVISITING COGNITIVE MAPPING: EXTRACTIVE CAPITALISM AND MEDIA ARTS IN THE MIDDLE EAST

Abstract

The increasingly complex, algorithmically mediated operations of global capital have only deepened the gap between the social order as a whole and its lived experience. Yet, Fredric Jameson's notion of cognitive mapping, attentive to the conflicting tendencies of capitalist operations, is still helpful for addressing the local instantiations of capital's expanding frontiers of extraction. I am interested in tracing the historicity of those operations as well as the totality they are actively part of in the present from the vantage point of the Middle East, especially along with the entangled trajectories of oil, finance, and militarism. To this end, I examine countervisual practices in the realm of media arts that contest the aesthetic regime through which the state-capital nexus attempts to legitimize its imperial logic and violence. My reconfiguration of cognitive mapping as countervisuality in Nicholas Mirzoeff's terms demonstrates that there is no privileged position or method of cognitive mapping, which ultimately corresponds to an active negotiation of urban space across the Global North/South divide.

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Introduction

In the aftermath of the uprisings that swept the Middle East and North Africa since 2011, the emergent networked publics have become a promising site to investigate the cathartic role of computational media in social movements. Given the centrality of the same technologies to the ongoing military conflicts and urban developments in the Middle East, Miriyam Aouragh and Paula Chakravarty encourage us to pay attention to “the United States and other Western colonial powers’ legacy of occupation, ongoing violence, and strategic interests in the region” (359). The entangled trajectories of oil, finance, and militarism in the wake of neoliberal globalization since the 1970s have evolved into an information regime of necropolitics, intensifying with the U.S. led global counterinsurgency, along with the expanding Israeli occupation of Palestine, which has become a testing ground for varied militarized technologies and tactics for urban control.[1]

Moreover, the Arabian Gulf states have become logistic hubs from which US-led wars and interventions in the region are coordinated, thereby developing into a commercial-military-humanitarian nexus (Ziadah). The Gulf Cooperation Council (GCC), a regional bloc of the six oil-rich Arab monarchies (Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates) founded in 1981, has been closely tied to the rise of the United States as the major global power due to its role in the oil-centered economy, financialization, and global supply chain (Hanieh, *Money, Markets, and Monarchies* 2-3). The tangle of highways, skyscrapers, and megaprojects manifest the almost universal adoption of the neoliberal agenda by Arab governments from the 1990s onwards. Challenging the simplistic rentier state framework, Adam Hanieh identifies a capitalist

class that he calls “Khaleeji Capital,” which is dominated by a few massive conglomerates structured around a Saudi-Emirati axis (*Capitalism and Class* 2). This local capitalist class draws its profits from its regional and international export of capital as well as the very deep exploitation of non-citizen labor.

Accordingly, I situate the Middle East as a fruitful setting for examining contemporary frontiers of extractive capitalism that have operationalized computational media as an imperial apparatus, thereby underscoring the continuum between smart weapons, cities, and futures. In contrast to the high-tech, post-oil spectacles of Gulf capital, such as Dubai (the UAE), I look at the war-torn and toxic cities that are spreading in the rest of the region, such as Beirut (Lebanon), due to the violent operations of militarized states as well as the ever-growing economic and ecological deterioration. Indeed, this contrast illustrates the massively polarized accumulation of wealth and class formation in the region.

The colonial and neoliberal underpinnings of computational media heighten the necessity of attending to seemingly distant events and sites all at once, which are tied together under the extractive operations of global capital today. Diverging from content and platform fetishism, as Jonathan Beller argues, we need to delve into the geopolitical implementations of these media formations, which are inseparable from both political economy and the ongoing legacy of coloniality. According to Beller, “we must do more than focus on *technics*; we must attend to the surround,” that have instrumentalized today’s machines as and within the matrix of racial capitalism (3).

Inspired by Sandro Mezzadra and Brett Neilson’s emphasis on the material specificity of capitalist operations, I interpret ‘the surround’ as the sites of extraction – where “capital hits the ground” (138). Their idea of

extraction in the expanded sense connects the abstract processes of datafication and financialization to the material conditions of extraction of natural resources, land, labor, and human sociality.[2] These multiple outsides, however, involve not only territorial expansions but also social hierarchies predicated on race and gender, integral to the operative unification of infrastructures, techniques, and institutions under the capitalist logic. Thus, Jameson's attentiveness to the conflicting tendencies of capitalist operations, unifying and differentiating at once, is still helpful for attuning to the local instantiations of capital's expanding frontiers – where its differential impacts are felt and negotiated strongly.

Ultimately, Jameson's conception of culture as a historical form offers a dialectical model for demystifying the imperial logic embedded within the operations of computational capital in Beller's terms, which stresses the imbricated histories of capital and computation. For Beller, race, gender, and media are co-emergent historical formations within the development of global capitalism with its material and epistemological roots in colonialism and modernity (3). It is on account of this 'already integral' status of imperial logic that I identify computational media as an imperial apparatus that enacts the matrix of valuation, to use Beller's terms, by tracking and weighting factors of whiteness, masculinity, citizenship, and geopolitics. In the face of computational media's erasure of the immediate history of its emergence as such, Jameson's mode of interpretation could help us to reveal what it obscures while functioning.

Revisiting Cognitive Mapping

Jameson's notion of cognitive mapping refers to an aesthetic that enables individuals and collectivities to render their position in a capitalist world-system and its historicity intelligible.[3] In Jameson's framework, the term is closely tied to the historical condition of late capitalism "in which the truth of our social life as a whole – in [György] Lukács' terms, as a totality – is increasingly irreconcilable with the possibilities of aesthetic expression or articulation available to us" ("Class and Allegory" 54). Jameson combines Kevin Lynch's empirical problems of city space with Louis Althusser's Lacanian redefinition of ideology as "the representation of the subject's Imaginary relationship to his or her Real conditions of existence" ("Cognitive Mapping" 353).[4] Jameson's dialectical model of cognitive mapping complicates the deterministic and totalizing models of representation since it indicates the individual's active negotiation of urban space, varying along the axes of class, race, gender, among others (Toscano and Kinkle 15).

The gap between the social order as a whole and its lived experience, however, has grown with the development of algorithms as extracting, abstracting, and predicting machines, colonizing human cognition, and communication itself. On the one hand, some media scholars rework Jameson's cognitive mapping by interpreting platform aesthetics as a technique of mediation. For example, Alexander Galloway offers a dialectical model of the interface as an effect, while Benjamin Bratton identifies "the Stack" as multiple totalities. Thus, they expand the edges of the interface by attending to the broader systems and histories underlying its production as such rather than grasping it as an aesthetic object at the surface layer.

On the other end, there are media scholars such as Wendy Hui Kyong Chun and Hito Steyerl, who claim that the task of cognitive mapping seems no longer pertinent or viable. For instance, Chun (69) argues that cognitive mapping has become an imperialist tool of network science itself, which seeks to link a local experience to global systems by flattening the subject into a functional category, or a simulated model. Indeed, for Steyerl, Jameson's totality, the sum of social relations, "is not absent, but rampant," having taken other forms such as contact metadata, relational graphs, or trolling campaigns (4).

For Jameson, it is not despite but because of their subsumption by the logic of the market that cultural forms become a frontline of our struggles (*Postmodernism*). Thus, Jameson frames cognitive mapping as an aesthetic problem rather than a prescriptive proposal ("Cognitive Mapping" 347-348). Within the scope of this article, cognitive mapping affirms the possibility of rendering the global network of capital, power, and information intelligible from the vantage point of one's positionality in relation to capital. Yet, it is an ongoing inquiry, affected by the shifting registers of praxis. Feminist and queer thought, as well as postcolonial and critical race studies, demonstrate how the laws of capital are "tendential, as opposed to totalizing" constantly producing, and reworking the hierarchies predicated on race, gender, and geopolitics (Mezzadra and Neilson 38).

Hence, cognitive mapping is about claiming the right to look in Nicholas Mirzoeff's terms, which is never merely about seeing but claiming to a political collectivity that contests the violent transformation of our relationship to history and the current reality (*The Right to Look*). My interpretation of cognitive mapping as countervisuality reconfigures the image of historicity and globality that necessarily involves reworking the imperial modes of visual regimes, knowledge

systems, and institutional structures that are always already integral to the capitalist logic but not reducible to it. In response to the ever-expanding scales and complexities of computational capital, artists could attend to its material operations and their performative implementations, thereby remapping the bounds of the psychic and the social, as well as the local and the global. Where capital hits the ground could become a setting in which counter-visual practices flourish, whether in the Global South or its equivalents in Western metropolises.

Cartographies of Digital Colonialism

In late February 2015, a few clips were released on YouTube showing ISIS militants destroying ancient artifacts at the Mosul Museum in Iraq. This was only the most recent incident of destruction done by the jihadist group ISIS (also known as Daesh) across the areas under its control in Iraq and Syria, some of which were well documented and circulated as part of their Hollywood-like propaganda. These videos were followed by the ones of ISIS' destruction of Palmyra's Arch, an 1,800-year-old structure, in Syria later that year. These highly publicized videos perpetuated the Western image of ISIS's concerted attack on civilization and the rising concerns regarding the preservation of the so-called world's cultural heritage. In the following months, international organizations such as the United Nations, state-sponsored agencies, and private firms initiated varied projects for the reconstruction of the ancient artifacts that were destroyed in the region. In less than a year, Palmyra's Arch of Triumph, modeled and printed by 3D technology, was presented to the public in London, the first stop of its world tour, as a symbol of solidarity

with Syrian citizens.[5]

These techno-capitalist spectacles, however, overshadow the U.S. and other Western colonial powers' ongoing violence and strategic interests in the region, which led to the formation of ISIS in the first place. Consequently, the political and historical narratives get stuck between simplistic binary readings, dominated by the rhetoric of us versus them, whereas the functioning of global capital relies on more complex structures of capital, power, and violence. In response, the artist, writer, and educator, Morehshin Allahyari, born and raised in Iran, and based in the U.S. for more than a decade, adopts 3D technology to develop "physical tactics for contesting digital colonialism." [6] Allahyari defines digital colonialism as "the tendency for information technologies to be deployed in ways that reproduce colonial power relations" ("Digital Colonialism"). In Allahyari's terms, If ISIS claims these objects by destroying them, and techno-capitalists reclaim them by replicating them, she offers a third way, restituting power and ownership of the dispossessed communities.[7]

With the series *Material Speculation: ISIS* (2015-2016), Allahyari reconstructed a dozen of centuries-old original artifacts (statues from the Roman period city of Hatra and Assyrian artifacts from Nineveh) that were destroyed by ISIS at the Mosul Museum in 2015. For 3D modeling, Allahyari needed still images to reconstruct those artifacts but there were not enough data to start with. These artifacts are already a part of looted archives and obscured histories. So, she needed to design those models from scratch based on the limited, and sometimes inconsistent data that could be gathered regarding the histories and material qualities of these artifacts. To this end, she collaborated with historians, archeologists, and museum staff for extensive research.

As we see in the figure of King Uthal,



Figure 1: King Uthal, *Material Speculation: ISIS* (2015-2016), Morehshin Allahyari. Image courtesy the artist. <http://www.morehshin.com/material-speculation-isis/>

she designed replicas as time capsules for the future with a flash drive or a memory card protected inside (Figure 1). Those cards preserve gathered images, maps, and videos about those sites from the time before their destruction. Allahyari released the digital files related to the first of the models, King Uthal, so that others could download and print their versions, which created an archive scattered around the world. Allahyari still seeks an institutional archive for the rest of the replicas in the Middle East to support cultural commons based in the region.

In this sense, Allahyari's use of 3D technology not only repairs the archive but also generates a cognitive mapping that connects the convoluted geographies and systems (monetary, technological, or symbolic) through which petrocapi-talism operates. Thus, she expands from the individual

artifact or technology to the broader systems within which they are embedded, thereby re-narrating their historicity as such. Most of the destroyed ancient artifacts in Syria and Iraq were smuggled by ISIS to finance its militant operations via Turkey, the United Arab Emirates, and Israel among others, to the Western countries (Westcott 30-39); which is to say, those artifacts soon will appear in private collections in the western world.

3D technology becomes the camera's shutter, in Ariella Aïsha Azoulay's terms, which acts "like a verdict—a very limited portion of information is captured, framed, and made appropriable by those who become its rights holders" (23). The imperial divisions and rights are materialized in institutions (e.g., archives, museums), captured by key political terms (e.g., sovereignty, democracy), and embedded within practices (e.g., preservation, study) that reproduce the continuing violence of the forced dissociation between people and objects. The fiction of Western progress perpetuates itself in the faces of its recurring crises while resting on the very erasure of the histories of others.

The replica of Palmyra's Arch of Triumph, reconstructed by Oxford University's Institute of Digital Archeology, reveals imperial formations at a regional scale as well. For instance, the Dubai Future Foundation, one of its main funding bodies, is currently building the Museum of Future in Dubai. The museum has one of the most technically advanced buildings in the world, partially 3D printed, while featuring a unique design with Arabic calligraphy on its exterior (Figure 2). The architectural spectacle of the museum reflects Dubai's goal of becoming a global hub for sustainable futures, as part of the UAE's strategical plans for positioning themselves within a fast-changing international order.

In contrast to the high-tech, post-oil spectacles of Dubai, Allahyari transforms plastic, the most commonly used raw material



Figure 2: The construction site of the Museum of Future in Dubai. The photo was taken by the author on March 20th, 2019..

for 3D printing, into a counter-narrative tool. Plastic's imbrication with computational media tackles the relationship between the extraction of geological layers of the earth (oil) and spectacles of Gulf Futurism that petroculturalism thrives on. Galloway coins the term "intraface" to underline the implicit presence of the outside within the aesthetic form of the interface, referring to the larger historical material context in which it is situated (53). Likewise, the strength of Allahyari's work is her attentiveness to the historicity of the medium, its situatedness within the material and discursive systems that shape its production and reception as such.

Counter-Futurism as Cognitive Mapping

First coined by the artists Fatima Al Qadiri and Sophia Al-Maria, the term Gulf Futurism underscores the contradictions inherent in the accelerated urban development in the Arabian Gulf, fueled by the 1950s and '60s oil boom, and continued with the neoliberal turn. Indeed, Gulf Futurism has emerged within the shifting registers of geopolitical constellations and sociotechnical imaginaries that

are evident, as Chad Elias describes, in the mixture of “desert city planning, hypermodern infrastructure, environmental collapse, premodern tribalism, and globalized cultural kitsch” (172). While facing post-oil futures, the UAE’s development plans adopt a newer emphasis on sustainable futures, joining a growing trend in the aftermath of the 2008 global financial crisis. The repetitive emphasis on transforming challenges of climate change into economic opportunities by investing in science and technology reflects the dominance of what Orit Halpern et al. call “smartness mandate,” strongly shaped by the trajectories of computation, urban planning, and crisis. Despite its popularity as such, smartness mandate does not aim at a future that is ‘better’ but at a smart infrastructure that can absorb constant shocks while maintaining the functionality of capitalist operations (Halpern et al. 121). In contrast to the polished projections of smart futures, however, counter-futurisms arising from the Middle East could perform “a link across very diverse contexts of political struggles where many of them have to do with these themes of race, territory and contested histories” (Parikka 50).

Following a similar path, a Beirut-based artist and writer with a background in architecture, Bassem Saad presents a navigable online virtual space *All Cared for by Chains and Loops* (2019)[8] that sheds light upon the racialized patterns of labor, care, and waste. The dwelling space is that of a paranoid queer narrator, who is concerned about the presence of a localized emergent intelligence that initiates infrastructural projects that are detrimental to biological health. Saad’s appropriation of 3D imaging technologies, capturing the actual site and redesigning it in 3D literally ‘recycles’ Beirut, thereby reclaiming a digital medium which is often adopted by state offices or commercial firms for generating the spectacles of smart futures.

Saad’s virtual landscape depicts one of the most polluted neighborhoods of Beirut around the port, the expanding dumpsites and suburbs of the city that host the economically and socially marginalized communities. Historically situated, Lebanon’s garbage crisis exposed varied patronages underlying the neoliberal trajectories of the country, which have led to the high levels of economic and political instability as well as urban inequality. Lebanon’s post-civil war economy is marked by its integration into Gulf rentierism through banking and real estate in the 1990s, which benefited rentier capitalists at the top, created a precarious middle class, and perpetuated poverty with the ever-growing symptoms of public debt and currency crisis. Therefore, the explanations that focus solely on the conception of sectarian “weak state” neglect the crucial importance of Lebanon’s dependence on Gulf rentierism (Bauman 62).

In the face of slow violence in Rob Nixon’s terms and unreliable mechanisms of the neoliberal state, the character carries out specific life-preserving rituals and objects. For instance, in Saad’s fictional world, unwrapped faces and skin textures, without having been mapped onto a 3D object yet, act as talismanic garments that protect the character from the negative impacts of the toxic environment (Figure 3). Similarly, transparent bodies held together by the spine-protecting medical belt are transposed with the grey city in the background which is falling apart as much as the bodies inhabiting it. These bodily forms expose the limits of the enclosure of an organism, as one’s body gets mixed with the toxic environment that keeps leaking. Thus, Saad’s intervention does not only bring back the thickness of bodies in the face of flattening abstraction of algorithmic media but connect those bodies to larger processes they are part of. In other words, Saad generates an aesthetic that links cellular and transnational scales.



Figure 3: A screenshot from Bassem Saad's *All Cared for by Chains and Loops* (2019). Image courtesy of artist: <http://www.bassemraad.com/systemcare>



Figure 4: Still from Bassem Saad's *All Cared for by Chains and Loops* (2019). Image courtesy the artist: <http://www.bassemraad.com/systemcare>

Saad's work becomes an act of cognitive mapping, as it maps out a global supply chain that is not only a North-to-South but also a South-to-South chain. Saad amplifies the entangled relationship between the racialized patterns of devalued labor and the unevenly distributed impacts of environmental degradation in the region ("A Calamitous Node"). On the one hand, the spreading toxicity in Beirut with the absence of required public services contributes to the increasing need for private care, including domestic care provided by non-citizen labor. These workers, mostly women arriving from South/Southeast Asia and Africa via the exploitative sponsorship system (also known as the kafala system), face the most intimate form of structural racism. On the other hand, the glowing city-island of 'Dubai Healthcare City,' underlines the growing popularity of health tourism in the UAE, which again relies on non-citizen labor in the sectors of construction and service.

The environmental impacts of computational media disproportionately affected developing nations and indigenous populations in a manner that Sean Cubitt characterizes as a "continuation of coloniality by other means" (150). This condition creates, for Nixon, a representational problem as it raises the question of "how to devise arresting stories, images, and symbols adequate to the pervasive but elusive violence of delayed effects and invisible harms" (3). Consequently, Nixon connects the aesthetic problem of slow violence to the environmentalism that often only the poor, the most vulnerable can see – like Saad's fictional character.

Accordingly, the disuse of media also preys on the same politics of invisibility. The most vulnerable populations of Beirut reside alongside the city's dumpsites, who are already marginalized within Lebanon's sectarian structures of social and spatial organization. In return, Blake Atwood raises

the question of what happens to these neighborhoods when they become "the dumping ground for tons of trash, including waste from the very media devices that promise to challenge sectarian politics" (60). Thus, if we want to tell a story of media use in urban struggles, these populations are also part of the story we tell since media are material as much as our conditions are (Atwood 65).

Saad's virtual scenery of Beirut contests the ideals of the smart city as a form of cybernetic urbanism, which imposes its spatial-temporal logic aligned with the one of capital. Instead, Saad shifts our gaze toward how data is distributed within a varied ecology of urban sites and subjects who interact with it in multiple, mostly conflicting ways. In this regard, Monika Halkort encourages us to critically examine the role of datafication in materializing objects, environments, and bodies "into historically situated measure-value relations that both enable and constrain possibilities for existence within the registers of market and state" (321). For example, her analysis of the Palestinian refugee camps, or the irregular migration in the Mediterranean Sea, grasps the complexity of data relations on the ground at the intersection of shifting registers of rationality, aesthetic regimes, and asymmetries of power.

Drawing upon Diana Taylor's idea of repertoire, Shannon Mattern puts an emphasis on the relevance of ambient and immanent kind of data, especially for developing nations, indigenous cultures, and marginalized populations. Vital urban intelligences survive within bodies, minds, and communities across time, as opposed to the accelerated speed of financial markets and news cycles. For example, Saad included sound recordings within the virtual space from the interviews he conducted with two local figures involved in waste and care economies, respectively (Figure 4). The Kafala system, implemented in the GCC countries, Lebanon, and Jordan,

is regarded as a system of modern-day slavery (Kathiravelu 14). Low-waged migrant workers are denied most of their labor and civil rights, and thus, systemically rendered vulnerable to varied kinds of exploitation and abuse. They vanish in the hands of employers and recruiting agencies as much as in the background of architectural spectacles and publicity efforts.

Consequently, Saad's work is better situated along with other countervisual practices arising from the streets of Beirut, especially since 2015, where people continue protesting the garbage crisis, the banking system, and the kafala system. During the country-wide anti-government protests that have taken place since October 2019, people chant for the resignation of the sectarian political class and the abolition of the kafala system, thereby targeting the wider class hierarchies altogether. The sectarian system being opposed on the streets is inherently tied to the same racist structures that oppress marginalized communities, most notably foreign domestic workers and refugees, and the same patriarchal structures that oppress women and LGBTQ+ (Ayoub).

By extrapolating contemporary economic, ecological, and political concerns into a post-apocalyptic future, Saad's work juxtaposes utopic and dystopic tendencies to bear on the present moment by exemplifying cycles of care and violence across individual and collective registers. Saad's work recalls Donna Haraway's idea of "staying with the trouble," probing the possibilities of life amid capitalist ruins and collaborative survivals in Anna Tsing's terms (37-38). The logic of resilience, however, is operative to the functioning of global capital itself, as smartness mandate demonstrates (Halpern). Ultimately, Saad's work moves towards this very question of what it means to survive in the presence of apocalyptic futures and to seek shelter that is only unevenly distributed.[9]

Conclusion

The Middle East is a fruitful setting for examining contemporary frontiers of capitalism that have operationalized computational media as an imperial apparatus. The global network of military and financial systems cannot be thought in isolation from the ongoing investments in war, oil, energy, security, real estate, arts, and high-tech industry taking place in the region all at once. Thus, claiming the right to imagine alternative futures is closely tied to the act of bringing back the historicity of those operations and attuning to the totality they are actively part of in the present. This dialectical move demonstrates the entangled relationship of aesthetics and politics within capitalist operations, whose obscured historicity reveals the fact that they are neither given nor inevitable.

The arguments regarding the capitalization of the general intellect (which also involves our capacity to imagine alternatives for capitalism) usually end up claiming that our thoughts, affects, desires, and futures are already captured by capital by the means of computational and financial systems. Yet, I encourage a media theoretical inquiry that acknowledges and learns from the ongoing urban struggles across the Global North/South divide, from those who do not have a privilege to stop believing in the future, and even becoming generative in the condition of decay of which we are all unevenly a part of. In the face of state-sanctioned violence, financial crisis, and ecological/urban collapse, artists could rework the bounds of materiality and imagination, thereby probing locally established universalities in their praxis.

There is no privileged position or method of cognitive mapping, which ultimately corresponds to an active negotiation of urban space. We need to trace resonances across the urban struggles

and radical futures arising from the Middle East along with “messy practice rather than cleanly defined theory” (Mirzoeff “Visualizing the Anthropocene” 229). Cognitive mapping affirms an aesthetic that does not exist yet, not because it is impossible but, rather, it cannot be encapsulated in a formula since it is always already in the process of making on the streets.

Notes

[1] See Mirzoeff, Nicholas. “Global Counterinsurgency and the Crisis of Visuality.” *The Right to Look: A Counterhistory of Visuality*, by Nicholas Mirzoeff. Duke University Press, 2011, pp. 277-310. See also Weizman, Eyal. *Hollow Land: Israel’s Architecture of Occupation*. Verso, 2007.

[2] See Mezzadra, Sandro & Brett Neilson, “On the Multiple Frontiers of Extraction: Excavating Contemporary Capitalism,” *Cultural Studies*, 2017, pp. 185-204. <https://doi.org/10.1080/09502386.2017.1303425>

[3] Cognitive mapping has been a significant part of Jameson’s entire critical endeavor since the late 1980s, coupled with his other renowned concepts such as political unconscious, utopia, and geopolitical aesthetic.

[4] Here, Jameson cites: Louis Althusser, “Ideological State Apparatuses,” in *Lenin and Philosophy*. Monthly Review Press, 1972.

[5] See <http://digitalarchaeology.org.uk/media>.

[6] See Morehshin Allahyari’s performance lecture, commissioned and co-presented by New Museum affiliate Rhizome, titled *Physical Tactics for Digital Colonialism*, 28 February 2019. <https://www.newmuseum.org/exhibitions/view/morehshin-allahyari-physical-tactics-for-digital-colonialism>

[7] See Allahyari’s talk, *Digital Colonialism, Re-figuring, and Monstrosity* at the School of Art and Design, University of Michigan, Fall 2017: <https://www.youtube.com/watch?v=HcK9K4Yty74>

[8] The navigable online virtual space was developed in the *Planetary Glitch* web residency of Akademie Schloss Solitude and ZKM Karlsruhe, curated by Mary Maggic.

[9] See Saad, Bassem, “No Entropy: Cassandra 2020.” *Unbag* Fall 2019. <https://unbag.net/in-tension/no-entropy-cassandra-2020>

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