The Mirror Interface

Towards an Expanded Consideration of Worlds and Media

Martin Osowski

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Martin Osowski

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Piet Zwart Institute, Rotterdam

Supervisor: Luke Williams

Second reader: Marloes de Valk

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Abstract

This essay aims to investigate the ways in which digital interfaces shape the constructed worlds we inhabit. To this end, it first analyses literature on worlds and ideology, media theory, semiotics, and human agency. It then identifies a number of structural properties of digital interfaces as they exist today and considers these in the context of the literature that has been discussed. Finally, it goes on to consider the reappropriation of interface design as a means of exercising agency in constructing new figured worlds and provides examples of projects that have sought to do so. Taking this as a point of departure, this thesis looks to widen a critical discourse as to what interfaces are and could be.

Introduction

I sit in front of my computer writing these words. On this same computer and in this same place, I read the news, trying to keep up with the latest developments in the war that recently broke out in Ukraine. It is also here that I earn my living. It is here that my memories are stored in the form of photographs and text messages. It is on this computer that I have developed a significant part of my cultural knowledge in the form of digitally streamed albums and films. It is here that I will choose who to vote for in the next election. To a large extent, it is also here that I have developed the worldview that guides me to that vote, where I make the distinction between right and wrong, between true and false. This computer tells me where I am, where I want to go, and how to get there. It shows me the lives of others in series of curated images. It is here that I focus my personal expression, using this computer to try and find some outlet for my human condition.

Our embrace of the personal computer has led to a collapsing of previously distant areas of human experience and knowledge into a space approximately 8 inches tall and 13 inches wide. While many observations have been made on the ways computers have reshaped our social and personal lives, this collapse has brought on a range of effects that we are just beginning to understand. Franco Berardi writes of computers as having become the locus of productive labor in late capitalism (Berardi, 2009). Byung-Chul Han argues in *Psychopolitics* that the contemporary individual is no longer a subject, but has rather become a project, falling victim to the tyranny of continual self-improvement and enterprising (Han, 2017). Hito Steyerl has observed that the expansion of computing has shifted our perspective away from a grounded individual who can only see until the horizon to an all-seeing entity looking at the world from above (Steyerl, 2011).

It is becoming apparent that how we see the world, how we position ourselves within it, and how we interact with it are all changing. This change is also now beginning to solidify. We seem to have passed the point at which a new technology could be called revolutionary. Instead, we have now entered a period of *optimization*. The basic forms and premises of our techno-social reality have been established. All that is left to do now is to make it run faster, more efficiently, to make it more *connected*. This encroaching status quo appears also to be unstoppable. We struggle to collectively envision a positive future that is meaningfully different to our present state. Even if we could envision it, the structures that would allow us to organize towards such a future seem to be no longer available (Fisher, 2009) (Han, 2017).

And yet it is well established in critical discourses that the reality we inhabit is the product of cultural construction. Material and social forces have brought us here and they are carrying us into our future. It is crucial to understand how these forces function if we are to understand our current situation and if we are to deviate from it.

Such forces today are becoming ever more centered around our interactions with the digital. The average young adult in the Netherlands reports spending 6-7 hours a day interacting with a computer or cell phone (Netwerk Mediawijsheid, 2020). Breaking this open, our everyday interactions with digital media can be thought of as consisting of three layers. On one end is situated the actual computational hardware: the underlying technical elements that store, process, and transfer information. At the other end we find the human subject. This is the terrain of subjectivities, understandings, identities, emotions, ideologies, and the many other affects that form our human experience.

In between these two layers lies the interface: all the elements which connect computational processes to human sensoria. Which allow for their interrelation and mediate the interactions the two may have with one another. When any of us use a computer, we do not interact directly with the computations occurring underneath, but rather with an interface that lies above. As mediators between ourselves and the mechanics of computation, the construction of digital interfaces therefore plays a critical role in constructing our material-symbolic landscapes, and by extension, our conception of reality.

It is the aim of this thesis to investigate the means by which digital interfaces shape the subjectivities we build and the figured worlds we inhabit.¹ To this end I will attempt to develop a theoretical framework linking ideas of worlds and ideology, media theory, and agency to the formal properties and functioning of contemporary computer interfaces. Questioning the notion of interface however also provides us with an opening for alterity. If currently prevalent computer interfaces are just one possibility for sculpting digital technologies, then envisioning alter-interfaces opens the door for new subjectivities in relation to digital media. Taking this framework as a starting point, I therefore will also explore the appropriation of computer interface design as a counter-hegemonic means of reconstructing our figured realities.

¹ This essay will largely focus on the figured worlds of late/digital capitalism, as this is the reality that myself, and many of the people I relate with, inhabit, and often push up against. That being said, figured realities exist in multiplicity, and often in overlap (Holland, 2001). The statements about contemporary worlds in this essay refer generally to those motivated by late capitalism, however.

1: The Construction of Reality

Before diving deeper into a critique of the interface, I would first like to outline a conceptual background linking the interactions of ideology, media, and the material-symbolic landscapes that surround us. The confluence of these interactions leads to the formation of the figured worlds we inhabit. Central to how the topic of worlds will be considered in this essay is that they are not fixed, objective entities, but rather the product of human subjectivities. While we may perhaps assume for present purposes that there is such a thing out there as an objective material world, a world that would be the object of study for the natural sciences², the realities we inhabit on a daily basis are necessarily the product of how we interpret and assign meaning to these material surroundings. These systems of meaning and interpretation lead to imagined realities; realities as we understand them.

It becomes relevant then to ask how these constructed worlds are formed. What are the mechanics of their production and reproduction? A second question is to investigate their implications. How do constructed worlds position us within them and shape for instance our subjectivities, behaviors, and structures of power. Finally, we should also ask as to how we can exercise our agency to reformulate these realities. In understanding how these worlds are built and how they affect us, how can we redirect this understanding towards enacting alterities?

The answers to the above questions depend greatly on the context being studied. The specifics by which worlds were constructed in prehistoric societies differ from those in the 20^{th} century, which differ again from

² This of course is not an unproblematic assumption. What we call the natural sciences have also been critiqued as products of specific cultural environments that accord the epistemologies for their proliferation (Latour, 1991). Furthermore, the assumption of an objective material world may also be debated, however I use it here rhetorically to argue that at least our perceptions of this reality most definitely are subjective.

those of the present. These differences can be traced to changes in technology and social structure. One element that makes our present context unique is the outsized role played by digital technologies in mediating a vast range of our experiences. Nonetheless, it is useful to analyze how worlds have been constructed in a variety of contexts, as this can help to lay bare some of the underlying mechanisms by which people and societies configure and reflect their environments into perceived realities.

Cosmologies, Ideas and Power

In Envisioning Power: Ideologies of Dominance and Crisis, Eric R. Wolf considers how conceptions of what the world is became deeply intertwined with structures of power among the Kwakiutl, an indigenous nation on the Pacific Northwest Coast of North America. Central to his analysis is the concept of cosmology. In scientific circles, cosmology is the branch of physics that studies the structure and origins of the universe. Ideas as to the nature of the universe are however not limited to only the natural sciences. Practically any culture has in some way mapped out what they perceive to be the nature of the cosmos, often differing greatly from contemporary scientific models. Thus. cosmologies can also be defined as the culturally specific systems of ideas that describe where the world originates, what it consists of, and what are the relationships between its human and non-human inhabitants. Cosmologies are at once totalizing and yet also variable between different cultures. Different cultures will have cosmological understandings, yet within any given culture those understandings define the axiomatic and fundamental properties of the supra-human world the people inhabit.



1. Structure of the Universe as per the Old Testament (Gier, 1987)

Wolf's thesis is that these cosmological understandings play a crucial role in shaping societies and enabling activities that would seem extreme to those external to the culture yet seem absolutely natural to those within it. By positing what are taken to be fundamental truths of a world, those wielding power can justify their positions and actions in reference to something seen as absolute. Thus, cosmologies do not explicitly define social structures, rather they "move them in a certain direction" (Wolf, 1999) by contextualizing human actions within the supra-human cosmos. In specifying what the world is, cosmologies by extension also govern epistemologies, the logics that determine what constitutes knowledge and truth, and what constitutes untruth. Auxiliary truths are built on the axioms posited by a cosmology and can then be further used to justify social formations and actions.

For instance, the status of a chief in Kwakiutl society was derived from an origin story that situates chiefs as mediators between human and animal worlds. The Kwakiutl origin story tells of a time before humans and animals became separate entities. At the point where they separated, chiefs representing the human and animal worlds established agreements that allowed humans to hunt animals for sustenance, given that the hunted animals were given the proper ritual treatment that would guarantee their resurrection. As such, chiefs oversaw the relationship between these two worlds and ensured its continued stability. This was reinforced and reproduced by the necessary rituals carried out in the hunting process which the chiefs would be responsible for. These rituals reified the cosmology the Kwakiutl inhabited, where in them "what is at stake [...] is not merely the advancement of particular individuals through the stations of life but the fundamental relationships of humans to animals" (Ibid.). This power imbued in chiefdom then went on to regulate other social structures governing for instance rules of marriage and the distribution of wealth.

In the case of the Kwakiutl, cosmological ideas as to the world's structure allowed for the power relations that regulated the culture's social formations. These power structures were not rooted in repression via force, but rather by a permeating ideology that specified the logics of what constituted truth, reality, and knowledge. As such, it was simply *natural* that society would be structured as it was, as this structure *made sense* within the cosmology of the Kwakiutl. Wolf summarizes the role of cosmology within Kwakiutl power structures stating that

ideologies [...] envision and project [...] imaginary worlds. [They center] upon key predicates, axiomatic conditions asserted to be true of that world. The Kwakiutl assigned transhuman values to certain kinds of objects and made their distribution and exchange a major theme of their lives. Circulation of these objects was understood to govern the exchanges of vital powers between humans and animals, and among groups of humans. Privileges and agency in circulating the objects were assigned to chiefs and their heirs; these privileges entailed the obligation to enact the "strict law that bids us dance" (Ibid.)

It is easiest to identify cosmological structures from a distance, in the 'mythologies' of historic cultures or those that we do not belong to. However, they exist to the same extent in our own lives.³ The question

³ This point extends also to the nature of this essay, which I am writing from within a specific cultural context and way of knowing. We are always embedded in a world, and though we may try, we cannot look at it from 'outside'.

then becomes one of tracing the mythologies on which our contemporary cosmologies are built as well as the environments which make such cosmologies possible.

What then are the cosmological presuppositions that enable a late capitalist reality? What are the ideological axioms within which this social formation makes sense? What 'fundamental truths' can those in power reference to justify the way things are? These are likely too complex questions to fully address here, however we may gesture towards a few ways by which we often understand the world today. In terms of the structure of the universe itself, our contemporary understandings⁴ derive largely from the natural sciences. These same methodologies of establishing truth via reduction and calculation become extended however towards a wide range of phenomena and motivate action in relation to them. Social and individual organization become oriented towards necessarily reductionist, calculated metrics such as economic growth. In this case, it is not the constituents of the cosmology that carry most of the ideological weight, but rather the logics that allow for their analysis and understanding.

The emphasis on the individual may also be seen as axiomatic within late capitalism (Faun, 2021). Whereas previously structures such as religion formed communities and provided shared meaningful experience, lasting forms of communal solidarity have become eroded away to include primarily just one's family and friends. We define ourselves then not as integral members of a community, but rather as free and projecting individuals. Cultural messaging entices us to "follow our own path"⁵ and

Nonetheless, we can strive to reconfigure our worlds on the basis of their existing parameters and structures. More on this will follow in the discussion of hegemony and agency.

⁴ This is of course not the only structure of the universe present today; however, I believe it is hegemonic in the logics of late capitalism.

⁵ I find this phrase to be rather dualistic, as I do also believe in autonomy and agency as important values in life. Nonetheless, this sentiment has been coopted by capital and employed for ulterior purposes. Perhaps it is more useful to ask

university degrees market themselves as offering a future of flexibility and dynamism, both largely synonymous with a lack of durable communal structure. Capitalist power feeds off of such an individualism. Without group solidarity, organizing for better conditions becomes impossible, and without communal experience to provide meaning, capitalism can sell us commodified pleasures to fill this hollowed void (Cassar, 2017).

Media and Subjectivity

In our daily lives we surround ourselves with reflections of what we believe the world to be, as well as our place within it. These may take the form of narratives, objects, symbols, learned actions, and the like. These reflections are often inherited, or develop externally to us, eventually becoming internalized into our own systems of meaning. In the case of the Kwakiutl, rituals such as the Potlatch gave Kwakiutl cosmology a reflection in lived experience. In the case of late capitalism, professional titles, digital images, and temporal structures of work/leisure serve to solidify our social realities.

These cultural reflections form a panorama of our existence, giving us a sense of understanding and position, as well as enabling the continuation of current realities into the future. Looking at our environments through this lens, it becomes interesting to ask what are the meanings⁶ that make up our own daily panoramas? However, I believe that limiting ourselves to this question omits a critical means by which our contemporary reality has been constructed: the influence of communicative media, which today are shifting ever more towards digital forms. I believe must also consider how the specific phenomenologies of these media frame said content. We need to ask: how are our senses engaged via the medium? What types of experiences does the medium encourage or deny? How

whether individualism as constructed by late capitalism truly provides such autonomy and agency, and what is lost in this construction?

⁶ By 'meanings' I refer broadly also to cultural phenomena such as narratives, behaviors, institutions, etc. that take on meaning within our lives.

does the medium situate us in a larger figured world (for instance as isolated subjects or as members of a community)? It is my proposition that these formal properties of media determine the types of worlds that can be constructed through their usage.

Marshall McLuhan spoke of media as extensions of the human sensorium. "The book is an extension of the eye... clothing, an extension of the skin... electrical circuitry, an extension of the nervous system" (McLuhan, 1967). The arrival of new media technologies causes shifts in how our senses become engaged in processes of communication and understanding: "Media, by altering the environment, evoke in us unique ratios of sense perceptions. The extension of any one sense alters the way we think and act-the way we perceive the world. When these ratios change, [people] change" (Ibid.). McLuhan further argues that when oratory speech gave way to the written word as a primary means of disseminating communication, the structured and linear nature of writing allowed for the emergence of a structured and linear 'rationality' in western thought. Text is reproducible, has durability across vast periods of time, and can be widely disseminated. Oration on the other hand is fleeting, temporary, and specific to place. A world characterized by the latter would allow for and preclude a vastly different set of subjectivities than the former. As such it would also precipitate a vastly different set of possible cosmologies.

Influenced by McLuhan, Friedrich Kittler argued that human subjectivity is deeply influenced not only by the reception of communication via media, but also by the means given to people in forming utterances. Discussing Nietzsche and the typewriter, Kittler posits that writing

is no longer a natural extension of humans who bring forth their voice, soul, individuality through their handwriting. On the contrary: just as in the stanza on the delicate MaIling Hansen, humans change their position-they turn from the agency of writing to become an inscription surface. Conversely, all the agency of writing passes on in its violence to an inhuman media engineer who will soon be called up by Stoker's Dracula. A type of writing that blindly dismembers body parts and perforates human skin (Kittler, 1986)

In transforming writing from an intimate personal communion to an alienated manipulation of signifiers, the proliferation of the typewriter also transformed how people became situated in figured worlds and engaged themselves with systems of meaning. Looking back at these past transformations, we can begin to grasp how changes in media environments led to changes in subjectivity and lived reality. But how have these changed in the context of digital media's rapid expansion? One may perhaps argue that text and image have become further alienated from the producing and perceiving subject, that the field of digital communication has become hyper-saturated, with utterances and images reduced to circulating and interchangeable commodities. We could also say that we have become embedded in a circuitry of communication that is always firing, softly coerced into uploading information, utterances, and images into faraway servers that return to us our desires in the form of packaged commodities. In the words of **Richard Seymour:**

Writing is not all we are doing. Much of the time is spent consuming video content, for example, or purchasing quirky products. But even here, as we'll see, the logic of algorithms means that we have often, in a sense, written the content, collectively. This is what 'big data' allows: we are writing even when searching, scrolling, hovering, watching and clicking through. In the strange world of algorithm-driven products, videos, images and websites everything from violent, eroticized, animated fantasies aimed at children on YouTube to 'Keep Calm and Rape' t-shirts unconscious desires recorded in this way are written into the new universe of commodities. This is the 'modern calculating machine' that Lacan spoke of: a machine 'far more dangerous than the atom bomb' because it can defeat any opponent by calculating, with sufficient data, the unconscious axioms that govern a person's behaviour. We write to the machine, it collects and aggregates our desires and fantasies, segments them by market and demographic

and sells them back to us as a commodity experience. And insofar as we are writing more and more, it has become just another part of our screened existence. To talk about social media is to talk about the fact that our social lives are more and more mediated. Online proxies for friendship and affection – 'likes', and so on – significantly reduce the stakes of interacting, while also making interactions far more volatile. (Seymour, 2019)

Figured Worlds, Hegemony, and Agency

If media engage us in specific phenomenologies that encourage or preclude various understandings of the world, then how does this come to bear on us as agents within these worlds? Conversely, how may we exercise our agency as individuals and collectives in order to reconfigure said worlds? Perhaps it is useful to begin by nuancing the concept of cosmology introduced earlier. The above discussion may suggest that cosmologies utterly determine a culture and that we are all subject to their powers; in reality however, complexities begin to arise. While traditionally anthropological and historical discourses tended to homogenize cultures and movements, a critical turn in these disciplines argues that social formations consist rather of diverse groups interacting in processes of power and negotiation (Holland, 2001). Hegemonic cosmologies are then a tool of power, constructed and/or preserved by the powerful for the purposes of granting them legitimacy and embedding others within a desired logic (Wolf, 1999).

As a tool of power however, they are ideologically imposed⁷. This imposition means that there is also a negative space, a space for otherness: for life prior to and beyond cosmological prescription. Power and cosmology then become enmeshed in processes of negotiation, where those who have 'hegemony' seek to set the parameters of social formation, but need to account for and negotiate with dissenting,

⁷ Although often internalized.

counterhegemonic voices (Jones, 2006)⁸. Counterhegemonies are plural: many people exist externally or in disagreement with hegemonic cosmologies; and we often exist within several worlds at once, taking on various identities depending on context (Holland, 2001). Figured worlds are then not deterministic, but procedural and evolving, opening up possibilities for redefinition and recombination. Within these processes, we necessarily still exist within environmental panoramas, made up of elements descending from both hegemonic and counterhegemonic sources. However, these panoramas are not fixed, and as agents within figured worlds we have the capability of altering them⁹.

In their book *Identity and Agency in Cultural Worlds*, Dorothy Holland and her collaborators examine a series of cases where people alter their figured worlds through the mechanism of symbolic mediation (Holland, 2001). Symbolic mediation refers to the process where people assign specific symbolic meanings to objects and phenomena in their environment, which then serve to regulate the thought processes, identities, and behaviors that we perform. They are physical and/or performed reflections of our identities and realities. As actors we ourselves assign the meanings to these mediating devices. However, rarely do we invent them from scratch, rather they are learned when engaging with the social environments we inhabit. Holland gives the example of a dieter placing a photograph of an overweight person on their fridge, reflecting back at them their own desire to lose weight. A digital equivalent to this would be the personas we create on digital

⁸ In *Routledge Critical Thinkers: Antonio Gramsci* by Steve Jones. The chapters on hegemony provide a very insightful exploration of how power and ideology function in relation to and negotiate identity and culture.

⁹ These processes of negotiation can take many forms, from adding or removing elements from our environments, to reappropriating hegemonic structures for counterhegemonic purposes. Take for instance social media platforms such as Facebook. This is obviously a hegemonic structure with vested interests behind it. Nonetheless, it has also been appropriated by dissenting groups as a means of social organization, for instance in the Arab Spring and Occupy Wall Street (Caren & Gaby, 2011).

platforms: avatars that project to ourselves and others who we are and desire to be. Beyond this however, symbolic mediators may reflect group identities, cultural/personal values, and our position in a wider context. In doing so they exercise power over us, however we in turn can exercise agency by altering the semiotic mediators in our environments, thus altering our symbolic panoramas.

To better understand the ways in which symbols mediate our lived realities, let us consider as an example the political/economic project of 'excellence' as described by Steve Jones in his overview of Antonio Gramsci's work on hegemony (Jones, 2006). In the context of economic downturn in a number of western countries during the 1970s, a notion of excellence began to be pushed through these societies in order to increase productivity and to align people's personal aspirations more closely with those of neoliberal institutions. Orienting people towards 'excellence' was meant to make people want to be high performing individuals, deriving satisfaction and meaning from their ability to 'excel' in both professional and personal contexts¹⁰.

Excellence finds it's symbolic reflection in grade schools, in university marketing, and in the profiles we build on social media platforms. It also extends beyond professional careers to other arenas, such as fitness and health, which make "an appeal to individuals as being physically self-reliant – a message that has a particular appeal to the subaltern middle class, amongst whom the cultivation of the body as a life project is most widespread and deeply rooted" (Ibid.). Thus, excellence becomes represented in our environments in a multitude of forms, communicating to us a set of values, and enabling these to continue into the future. Construed as such, excellence furthermore places a central focus on the individual, who is responsible for living up to this cultural ideal, or who fails to do so. At the same time, can we envision an alternative symbolic

¹⁰ Byung-Chul Han describes a similar phenomenon when he speaks of the contemporary individual no longer being a subject, but rather a project (Han, 2017), and Franco Berardi also speaks of a contemporary merging of desire and enterprise in *The Soul at Work* (Berardi, 2009).

order in opposition to the hegemony of 'excellence' and its individuating machinations? What form would such symbols take and where would they exist?



Search for the most popular skills for a Research And Development Engineer

2. A screengrab from my LinkedIn, encouraging me towards training courses to 'advance my career'. Such fragments of our digital environments reflect back at us ideologies of 'excellence' and reinforce a notion of the self as an always unfinished project.

Reconfiguring Agency

In the above chapter I have tried to argue that cosmologies, conceptions of what the world is, form the ideological setting against which actions and ideas can be justified. Based on the axioms set forth by a cosmology, structures of what constitutes truth and untruth, as well as value and meaning can be developed. As a seemingly totalizing backdrop they are central in defining the core tenets that create a figured world. While striving to be totalizing however, cosmologies are also culturally constructed. In the case of the Kwakiutl they were constructed on the basis of origin stories that defined the natural order of things.

Cosmologies require constant reification. This reification can occur through a variety of means: for instance, via rituals, institutions, or symbols in the environment. Paraphrasing Marx, Louis Althusser states that "a social formation which did not reproduce the conditions of production at the same time as it produced would not last a year" (Althusser, 1971). Yet these same mechanisms that reproduce hegemonic cosmologies can also be used to construct new ones. By reclaiming these mechanisms, actors within a world can gain agency in shaping it. Agency through symbolic mediation as described by Dorothy Holland thus provides a praxis by which cosmologies can be reconfigured.

Yet we must also extend the notions put forward by Holland to give consideration towards the phenomenologies and logics of media. While Holland speaks of the placement of signifiers in one's environment in order to construct and reconstruct figured worlds, we should also consider Marshall McLuhan's famous maxim that "the medium is the message". Symbolic mediation must therefore not only be analyzed in terms of the specific signifiers placed into the environment, but also by the media that engage them. As the above discussion of McLuhan, Kittler, and Seymour has shown, the properties of media position our subjectivities. Subjectivities that then go on to define our own natural orders of things.

Given the flexibility of digital technologies, I would like to return to the three layered model introduced at the beginning of this text. What separates digital and analogue media is that while the technical properties of an analogue medium translate directly to how they operate in conjunction with a person, digital media decouple the technical necessities of computation from the experience of its use. The medium of handwriting follows from the properties of ink and paper; however, the medium of the keyboard is not a necessary outcome of the CPU. This places the interface in a position of central importance. The interface mediates between the technicalities of computation and the phenomenologies engaged by a subject. Although taken for granted, the interfaces that we have grown accustomed to are an intentionally designed subset of what is possible. This realization forces us to be critical of the interfaces we engage with today; however, it also provides us with an opportunity to liberate digital media from the cosmologies they currently (re)produce.

2. Interfaces and worlds

Three Dimensions of the Interface

Digital interface design has from its inception sought to make the computer disappear, to render it "transparent". This transparency is not defined however by the intent to make it clear how a computer operates, but rather to make it clear how to operate a computer: to make it unseen part of our environments (Lialina, 2018). The computer is meant to fade into the backdrop, letting us think not about the computer itself but rather only what it does for us. Using a computer should be "clear", "simple", and "natural" (Bolter & Gromala, 2003). Nonetheless the history of digital interface design consists of decisions made. While interfaces aim to present themselves as natural, there are intentions, both implicit and explicit, that underlie the forms they take (Lialina, 2018). These intentions may be benign; conversely, they may be deceptive, aiming to hide some ulterior motive. Often the intentions behind a design decision may not be conscious but rather merely the continuation of an existing cultural norm. Nonetheless it is critical to note that interfaces are a constructed entity and that as their constructors we should actively take responsibility for what they are.

How then do the digital interfaces of today serve to reproduce dominant cosmologies? It may help to consider interfaces as operating on three distinct dimensions: the contextual, physical, and internal. We can begin with the contextual positioning of the subject(s) in relation to the interface. Does the interface exist in a space that is public or private? Does the interface position subjects as isolated individuals or does it welcome collectives of people? How is one's body positioned in relation to the interface? Seated or standing? Moving or still? Alone or together? Near or far?

Next, we can look at the physical and sensory means by which the interface engages a subject. Taking the example of a desktop computer, this interface engages the subject by taking inputs via a 'mouse' and 'keyboard', and projects back via a 'screen' and 'speakers'. A smartphone presents an interface consisting of a single small 'screen', which serves also as the point of user input, and potentially a pair of 'headphones' for the ears.

Finally, we can zoom in on the internal logics of an interface. Under this umbrella we can place the design of application and web interfaces. Here is where we specify what happens when the user gives a certain input and what virtual space may follow another. What are the actual images appearing on a screen and the sounds emanating from a speaker? What algorithms are crafting our experiences behind the scenes?

Thus, we can think of interfaces in terms of their contextual, physical, and internal dimensions. This model expands a traditional notion of the digital interface which largely takes the contextual and physical domains of interfaces for granted and focuses solely on the internal dimension. As I sit typing these words, I am contextually positioned in my home, seated in front of a computer that only I am using. Physically, I am presented with a keyboard, mouse, screen, and speakers. Internally, I am interacting with the interface of a word processor, which responds to my finger movements by reflecting back at me what I wish to encode into written language. Naturally, these three dimensions interact to enable and constrain possibilities amongst each other. The internal possibilities of a computer without a screen will be significantly different to those in a computer bearing one. Likewise, depending on the context a computer¹¹ is meant to operate in, decisions regarding its physical properties will follow. This then goes on to shape the possibilities of the interface's internal dimension.

¹¹ I use this term hesitantly as it connotates a traditional desktop or laptop computer. By using "computer" however, I refer to the range of possible machines that would employ the technologies of digital computation.

The Positioning of the Digital Subject

Bolter and Gromala famously stated in their book *Windows and Mirrors* that "if we only look through the interface we cannot appreciate the ways in which it shapes our experience" (Bolter & Gromala, 2003). What then are we presented with when we look through the interface? How do contemporary interfaces position our subjectivities in relation to symbolic realms? Two such effects that I will try to elaborate here are the emergence of a vertical gaze as described by Hito Steyerl, and the construction of an abstract individuality.

With the expansion of digital media into everyday life, we seem to have gained a 'birds eye view' over reality. Personal computers present to us what seems to be a near total mapping¹² of the world and allow us to engage with these projections, near or far, from the detached perspective of our screens and seats. In doing so, PCs compress a seemingly absurd range of realities and potentials into the space of the screen. We now have access to 'all'. Via a PC we can engage with the latest developments in a brutal warzone, moments later book an Airbnb for our next vacation, and then order a product to be shipped to us from halfway around the world.

Hito Steyerl documents this increasing verticalization as a fundamental shift from a previous paradigm of linear perspective (Steyerl, 2011). Linear perspective envisions an individual standing on solid ground with a stable horizon serving as a distant reference point. Within this paradigm, vanishing points extend out to the horizon, giving the viewer an understanding of distance, and by extension of an ordered, interpretable, and stable space. Linear perspective based on a stable observer and horizon carries its own set of projections, of simplifications made on a chaotic and unstable natural order. It ignores for instance the

¹² In a cartographical sense, but also in the sense of information, culture, history, people, and the many other elements that make up existence on Earth and can now be accessed 'from above'.

curvature and rotation of the Earth, instead projecting the horizon as an unmoving horizontal line in the distance.

This constructed perceptual paradigm bears much resemblance to the cosmologies explored by Eric Wolf. Linear perspective defined its own order of things: of the universe as rigidly structured, measurable, and governed by laws of nature. Of the individual human figure as the locus of systematic interpretation. Of the duty of the person to define and discover new pieces of knowledge that fit into the logics of science. To map and extend beyond the limits of the horizon, providing a justification for colonial ambitions.

With the expansion of computers into our daily lives however, the paradigm of linear perspective has become supplemented by a perspective of verticality; of a god-like viewer looking down at the world from above. Whereas linear perspective takes a stable observer and a stable horizon as axiomatic to its development, vertical perspective takes as its basis the assumption of a stable floating observer and a vast multitude of stable *grounds*¹³.

We look at these from the detached position of the screen, each webpage we access, each image, each profile, each digital service is a representational fragment that we now have access to in a sea of distant projections. Of perspectives captured by non-human agents such as satellites and photo cameras, in-turn flattening the capacities of our human sensoria to two-dimensional images. Central to both vertical and linear perspective is the privileging of an abstracted, individual observer. In the case of linear perspective, it is the eyes of a single person that are being simulated¹⁴. With vertical perspective, I believe it can be argued

¹³ Steyerl does not explicitly define 'ground', however I take it in this context to mean a type of stable world or representation: a seemingly defined and real microcosm that we can access through digital media.

¹⁴ This can be seen in artworks that employ linear perspective in their depictions, for instance Adriaen Ysenbrandt's *The Mass of Saint Gregory the Great (1510-1550)*. Here things are made to seem as though *you* were standing in the scene, replicating the idea that the individual observer is the nucleus of representation.

that we now have access to a fragmentated multiplicity of perspectives, however the contextual properties of the contemporary interface position us nonetheless as abstract individuals who interact with and navigate this fragmented landscape.



3. Adriaen Ysenbrandt, The Mass of Saint Gregory the Great (1510-1550)

Comparing this to the prehistoric paintings of the Roca dels Moros, we see a symbolic and representational logic that is independent of the structures of individual sight.



4. The Dance of Cogul in Roca dels Moros, Catalonia. Tracing by Henri Breuil

Engagement at a Distance

Taken to its extreme, the everyday computer interface becomes an instrument of war in the form of control terminals for military drones (Lialina, 2015). From here lives are taken and battles are fought thousands of kilometers away in what has been termed "commuter warfare" (Kwek, 2012). Drone operators wake up in their homes, have breakfast with their families, drive to work, engage in combat for 8 hours and then pick their kids up from school. While at war they each sit in front of their own terminal, a high-tech transformation of an office cubicle made into an aerial cockpit. Sitting alone in front of their terminals, operators become contextually positioned as abstract individuals, removed from any interpersonal physical contact or geographic specificity, describing the experience by saying "Sometimes I felt like God hurling thunderbolts from afar" (Kwek, 2012). Physically the interface offers them but a flat screen, a set of peripheral controls, and

a headset to communicate with mission command. They experience none of the environmental factors of war: the temperature, the sound, the physical exhaustion. On its internal dimension the screen gives a topdown view¹⁵ of a far-away warzone. Targets are often reduced to white silhouettes, showing just their body heat against a grey background. They are seen through the constructed lens of a crosshair, and after they are killed the image on the screen changes, taking the operator somewhere else. The consequences of their actions are now far behind them.

This is an extreme example; however it displays the many of the same interface characteristics and phenomenological patterns as our usage of everyday computers. When in front of a computer, we too are often alone, positioned as individuals devoid of context and community. We too are presented with a standardized and stripped down means of physical interaction: a keyboard, a mouse, a screen. Where drone operators carry out strikes according to logics of military tactics and command, we carry out our virtual lives according to the logics shaped by tech companies and digital platforms.

From this position we also engage with distant realities, and while we may not be taking lives with military drones, it can be argued that another type of violence is taking place in the machinations of digital capitalism. A violence enabled by a fragmented cosmology built on the basis of distant, artificial, stable-looking grounds. We enter it as individuals, interacting with this world from isolated, individual vantage points. A vast portion of our lives are spent here, and as Franco Berardi observes, no matter the task we are doing or the job we fulfil, we all use the same bodily gestures and look at the same screens (Berardi, 2009). It is a cosmology of individuals who look down at the world from a distant above, who have access to a near-infinite number of stable grounds to rest their eyes on. Its future is governed no longer by 'laws of nature' and a modernist notion of progress, but rather by the mechanics of big data and a quest for optimization (Han, 2017).

¹⁵ In this case quite literally a vertical perspective.

3. Towards Alter-Interfaces

In the work of Dorothy Holland we see people reshaping their figured worlds through a dialectical process of reconfiguring their physical environments. Through symbolic mediation, they either construct environments that reflect a desired reality, or they imbue existing symbolic environments with new meanings, providing them with new understandings of the worlds they inhabit (Holland, 2001). While such symbolic mediation is still critical if we are to reconfigure our own realities, in these times of pervasive digital mediation we must also consider the logics of how we position these symbolic meanings in relation to ourselves. Late capitalism has the capability of appropriating a vast range of meanings and symbols, enacting processes of commodification, and returning them to us as hollowed out abstractions of what they once were. It sells us ideas of resistance, without ever putting itself under threat of dissolution. By embedding us as individuals in a circuit according to its logics, late capitalism furthermore extinguishes once viable means of resistance. Organized movements of labour solidarity are but passing images when we become figured as isolated entrepreneurial projects, always seeking to optimize ourselves in the context of economic and social precarity (Han, 2017).

Therefore, in order to reconfigure our contemporary figured worlds, we must become not only agents within a symbolic order, but also *agents with regards to the constructed logics of mediation*. In developing a praxis towards such agency, I believe it is useful to consider the three dimensions of interface introduced in the second chapter of this essay. We have seen how the contemporary computer interface positions us as abstract individuals, gives us two dimensional, distant representations to interact with, and scripts these interactions through platform logics developed by big tech. Yet if we speculate on the contextual, physical, and internal properties of computer interfaces, could we both construct new systems of meaning as well as new ways of engaging with and organizing around

these systems? Could we consider the interface as a material? One that we can sculpt for purposes of community and unalienated meaning, while also revisiting the physicalities, challenges, and limitations associated with digital computation? Could interfaces become sites of communal ritual, perhaps reinforcing seasonal logics that exist outside of capital? Could they open possibilities for new ontologies of the human figure? Or perhaps reflect more equitable structures of power and labour?¹⁶

I will conclude this essay with a few examples of such alter-interfaces. I am not necessarily advocating for the proliferation of the interfaces discussed here; however, I believe they shine a light through the cracks of our contemporary environments and provide openings from which we can further speculate.

A Computer to Communicate with God

Within computer science circles, TempleOS has become something of an urban legend. Built by Terry A. Davis, a computer programmer who in his late 20s began suffering from manic episodes and schizophrenia, TempleOS is an operating system conceived as the Third Temple of God prophesized in the Bible¹⁷ (Hicks, 2014) (TempleOS, n.d.). According to

¹⁶ In order for such efforts to be truly resistive, a discussion also needs to take place regarding how such interfaces are conceptualized and produced. If we go on to produce alter-interfaces as isolated individuals, we risk reproducing the same late-capitalist logics that we aim to overcome. Rather, a consideration of community led design processes should be made, giving groups of people agency over the figured worlds they wish to inhabit. Structures such as platform cooperativism are here insightful, opening the possibility for digital projects that are owned by communities rather than private interests (Scholz, 2016). Other considerations also need to be made regarding the environmental and social implications of manufacturing computer hardware. These are beyond the scope of this essay; however, they are worth being cognizant of when speculating on this topic.

¹⁷ When discussing Davis, it is necessary to also acknowledge that he was a divisive figure. While TempleOS is a fascinating case study, Davis was also

Davis's own accounts, he was instructed to do so in a revelation from God. It became his purpose to build this Third Temple, with God professing to him such details such as to "stick to 640x480 and 16 colors, with only a single audio voice. Like Noah, he built as he was commanded" (Hicks, 2014). TempleOS has also been lauded as an incredible technical achievement for a single person. Terry Davis developed his own programming language (HolyC), his own compiler, and the entire operating system on his own. Within the OS one can, among other things, speak to an oracle, make offerings, and talk to God. Aside from this, it features no internet and no tools for productivity. The OS is singular in its purpose as a spiritual project for communication with a supra-human deity.

As an interface, TempleOS diverges from the everyday computer only on the internal dimension. One still interacts with the system using conventional peripherals. However, it does fundamentally reconfigure the purpose of the computer: it is no longer a utilitarian tool or a means of accessing global data, rather it is a portal for religious experience. As such the positioning of the human subject also shifts. The expectation of what the computer is for and what it can provide are perhaps less technically ambitious than 'connecting' one to the rest of the planet, but simultaneously take on the ambition of providing meaningful spiritual experience within a bounded scope of operational possibilities¹⁸. The human subject is thus not led to believe the computer can give them a 'top-down' perspective onto the world that we now expect, but rather to

known for his intolerant and combative outlashes on internet forums and video streams, often degenerating to highly racist and supremacist utterances. Many people refer to his cognitive state as the reason for these behaviors and it is quite obvious that Davis suffered heavily from mental illness, seldom displaying a firm grasp on reality. Nonetheless, it is important to be cognizant of these facts and to be considerate towards both those afflicted by the harmful utterances used by Davis, as well as his own sufferings from mental illness.

¹⁸ TempleOS does not have the same 'limitless' functionality that we expect from an everyday computer.

perceive the computer and what it communicates as a form of religious engagement.



5. TempleOS landing page

A Cyborg Sexbot for Polymorphic Futures

In her work *Molecular Sex and Polymorphic Sensibilities*, Johanna Bruckner imagines a cyborg sexbot "aimed at liberating normative technology-led worldviews of intimate relations" (Bruckner, 2020). Made from toxic plastics, the sexbot seeks to queer logics of sexual reproduction and propose a non-reproductive politics of pleasure that reclaims the affective processes of networked digitality. It envisions a world where reproduction follows logics of cell division, dispersion, and accumulation. Rather than being subjects, we become transformed into

objects: into *things* embedded in wider networks of things, which must necessarily consist of toxicity, bacteria, and other hybridized, unbounded forms of being. In the words of Hito Steyerl, "How about siding with the object for a change? Why not affirm it? Why *not* be a thing? An object without a subject? A thing among other things? 'A thing that feels,' as Mario Perniola seductively phrased it" (Steyerl, 2010).

To this end, Bruckner envisions the sexbot reappropriating the affective machinations of data collection and AI. However, instead of using these for the purposes of marketing us affective commodities as described above by Richard Seymour, these technologies are now used to create alterities in the relation between pleasure, artifice, and the human body:

This code and the bot's subsequent actions are based on training, which makes modifications in intra-action with its environment. This training is based on data sets, which intra-actively generate data-scapes of pleasure, and which are again linked to and placed within the existing infrastructures of computing, while also redefining access and connection within computing. Rather than encouraging data's permanence, these emerging intra-active datascapes promote polygamy, polymorphism, and randomness. The code opens up networks of as-yet unknown sensual, affective knowledge: an eternal nexus of feedback within the sym-poetic entanglement between body, sex, and technology, toward a polyrhythmic cyberspace. As a micropolitical virus, the physical and artificial body infiltrate the configuration and performance of other technical machines and their relations. Its agency should be recognized not only by its appearance as virtual pleasure, but by its ability to redistribute and contest the processes of transmission, streaming, downloading, storage, sharing, and consumption. (Bruckner, 2020)



6. Still from Molecular Sex, Johanna Bruckner (2020)

A Cybernetic Control Center for Socialist Utopias

In the early 1970's, a newly elected government in Chile began a project where cybernetic technologies would be used to oversee and manage a democratic, socialist economy. Built in collaboration with British technologists, Project Cybersyn would provide government decision makers with real time data on factory output, economic performance, and worker participation. It would analyse these data to warn the government of economic risks such that they could be avoided. Economic and policy initiatives could be run through modelling software, allowing informed decisions to be made in steering Chile's economic future. Workers would also be involved in the processes of designing and using Cybersyn. For instance, they would participate in the design of its statistical models, and as such become directly involved with economic management at the national level (Medina, 2011). The Chilean government hoped that by using cybernetics to manage and improve economic structures in a socialist context, they could achieve stability and prosperity, taking a third path in rejection of American neoliberalism and Soviet communism.

At the core of Cybersyn was the operations room, a control center consisting of seven chairs equipped with an array of controls and surrounded by screens that would provide real-time economic insights. A team of managers would be located here, and in cooperation with the Cybersyn's hardware/software systems oversee the functioning of Chile's economy. On the level of the interface, it is notable that contextually its users are positioned as a group and that they can face one another in a roundtable fashion. They do not have individual screens, but rather are surrounded by data that they analyse in conjunction with one another. In addition, the utilitarian context of the interface is reconfigured away from a space of capitalist production and consumption, and rather towards a socialist vision of equality and emancipation. Cybersyn never did enter into operation, however. In the Chilean military coup of 1973 the project was abandoned, and the operations room destroyed.



7. Render of the Cybersyn operations room

Conclusion

The cases described above each utilize the digital for purposes that exist outside the logics of our current cosmologies. They reposition our subjectivities and allow for new relations to meaning, opening the door to reconfigured realities. In the case of TempleOS, Terry A. Davis built an operating system for the sole purpose of communicating with a suprahuman being. Johanna Bruckner's speculative sexbot undermines logics of reproduction and instead embraces a politics of pleasure consisting of toxin, artifice, and plastic: reimagining us as objects entangled in broader webs of *things*. As a project merging visions of politics and technology, Cybersyn envisioned using computational technology to enable a democratic, socialist economy.

Although we can surely find flaws in these examples, they show us that the means by which we interface with the digital today are not fixed. Digitality provides us with the possibility of re-envisioning how we relate to the processes of computation by reconsidering this middle layer between ourselves and computational hardware: the interface.

In contextualising the discussion contained in this essay, I would like to conclude by saying that I am not arguing in favour of a technological determinism. The realities of human thought, subjectivity, and organization are immensely complex and open-ended. As such, it is obvious that no miraculous interface will on its own lead to the emergence of an alternate, emancipated reality. In addition to this, many examples exist of everyday computers being counter-hegemonically used for subversive and liberating purposes. It is also possible that subverting the logics of late capitalism may entail a withdrawal or scaling back of digital realms. Nonetheless as we try to find new meanings by which to reconfigure our lived realities, I believe we should consider not only the meanings we want to create, but also how we engage and position these meanings in relation our selves, thoughts, and bodies.

Where to next then? While I have argued that reimagining the interface is a vital step in reconfiguring our figured realities, questions still remain as to the practical follow-up of this argument. How do we create alterinterfaces that reflect the visions of communities rather than only technically savvy individuals? What form shall these new interfaces take? These are questions warranting further exploration; however, I hope to have here shown that realities can be reshaped, and to have provided a provocation on how to perhaps attempt doing so.

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