

Indistinguishable from magic: perception, knowledge, technology, art

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As Arthur C. Clarke famously wrote, “any sufficiently advanced technology is indistinguishable from magic” [1]. Indeed, magic and technology have always been interwoven, their boundaries always blurred. It is notable that Thoth was the ancient god of both writing (arguably one of the greatest early technologies) and magic, suggesting a link between words, knowledge and power, and perhaps even the ability to (re)write reality. Building on this link, and following Lacan, Bard and Soderqvist assert that in contemporary society reality is only ever the illusion of reality [2]. The socio-economic structures of the information age are therefore cultural magic tricks which must be sustained by new power relations. Lacan himself linked cybernetics to the nature of language, with subjective boundaries appearing between presence and absence [3]. This recalls perhaps the most well-known magic trick, common to both mystical and practitioners and stage entertainers: making something appear and/or disappear, the act of concealing and revealing. With computer interfaces, and the hidden reality of code that exists within a computer, digital technologies have long been associated with magical processes [4]. Chesher outlines the concept of “invocational media” in which knowledge of specific words of power is required in order to invoke data with the correct command or call [5]. Nusselder describes the enchanting nature of the world that appears on screen as being a process by which humans can handle a reality that would otherwise remain inaccessible, hidden and unknowable [6]. If knowledge is power, then in digital technology this knowledge takes on an additional level of abstraction. Digital knowledge, as code is the invisible underpinning of reality, and knowing the correct words, gestures or commands enables control over this digital reality. The world order of the information age is based on our relative ability to make the hidden realm of digital data appear or disappear.

The present technocracy in economic, political and cultural spheres has created a ruling “sorcerer” class, as if to fulfil and replace Plato’s philosopher kings. Withholding knowledge to maintain control, and revealing displays of power at carefully chosen times, enacts the performance of digital society. Whether through algorithmically run stock markets or social media propaganda, today’s rulers offer mystification through obfuscation, power through understanding, and influence through controlled revealing. Thus the manipulation of epistemological and perceptual constraints enacts a digital divide across all aspects of social, economic and even material reality. Our everyday lives have become embedded within the systems of a magical realm of technology that now controls our entire society. Against these structures of control, enter the digital artist. Clarke’s second law states that “the only way of discovering the limits of the possible is to venture a little way past them into the impossible” [7]. The role of critical digital art is to stage the impossible and thereby reveal the magical limits of technology and technoculture. Using the illusory and enchanting qualities inherent to artistic practices, framing technology in a magical context highlights the contact point between

possibility and impossibility, between known and unknown. Indeed, Clarke's second law can be rewritten as "the only way of discovering the limits of knowledge is to venture a little way past them into the unknown". The ability of art to create perceptual experiences beyond our everyday existence brings the seemingly impossible into contact with the possible, a magical act of revealing. What the digital medium adds to this practice is the blurring of the conventional world with the magical realm of art, and the ability to directly alter reality and instigate new relationships between the artist and spectators' perceptions as part of a complete system of mediation.

<1> The digital artist as magician

The graphic novel writer and occultist Alan Moore has stated that art precisely is magic [8], with the contemporary artist acting as a replacement for the shaman. This echoes Benjamin's cultic art [9], now moving beyond mechanical reproduction into digital production as the new magic. The role of the artist in a world controlled by the flow of information is therefore a form of Socratic creativity: showing us that we know nothing. In making clear these epistemological limits and structures of control, the act of concealing itself becomes a gesture of revealing that enhances our perception of the magical world of technology. Against Heidegger's conception of technology as revealing, where revealing necessitates moving some information from concealment into unconcealment [10], in the relation between technology and art the act of concealing itself leaks information - the very fact that there is something being concealed. The practices of artists can therefore be associated with those of the magician, clearly staging acts of concealing in order to reveal, providing a method of analysing specific artists' work in using altered perception to create new experiences of knowledge with technology.

The digital artist as *illusionist* changes our perception of reality. By creating fantasms that conceal and replace our everyday experience, the artist as an illusionist uses lies within a specific frame of reference to tell their audience a truth about the framework of knowledge itself. What is revealed is not only the imagination and perspective of the artist but also the structure of the illusion itself. The act of staging a suspension of disbelief through digital imagery, and the performative gesture of entering and exiting such an altered state of perception, reveals the underlying process of concealing and revealing inherent to all mediation. The illusionist therefore reveals the subjectivity of experience through the act of concealing, fusing McLuhan's view of media with the practices of the postmodern artist.

The artist-magician also takes the form of the *alchemist*, who attempts to create an alternative reality. Beyond the transmutation of matter, the alchemist's quest --- referred to in alchemical texts as the great work or "art" --- is fundamentally a process of changing oneself in order to create a new reality. The artist as alchemist creates a subjective reality to be experienced by their spectator. The alchemical process seeks to override the hidden reality of data through the use of esoteric knowledge revealed to the subject. This is the full embodiment of knowledge as power in rewriting the world through technology.

The digital artist uses the skills of the *necromancer* to bring to life the hidden reality of information. At a basic level this is the process of “animation” which gives movement to static data, but it is also the process of raising technology as “spirits”, creating new life and new subjectivities from inert machines. This use of specific names and commands also recalls the demonologist, seeking to invoke hidden forces to enhance their own power. As an artist, this process is the revealing of new or lost entities, generating life from data or reinvigorating familiar and inactive systems. The spectator of such feats is thus invited to consider the power at work in the manipulation of data and the possibility of new forms of life and creative order.

Digital artists also embody the *sorcerer*, the practitioner who seeks to directly change reality. Through the invocation of specific spells and powers, the sorcerer turns their thoughts outwards, rewriting the world around them. This process of direct manipulation exposes to the audience the raw power of technology. Through changing some part of the world, even in a staged situation such as a work of art, the sorcerer reveals the underlying structures and provides hope that control might be wrested from the current rulers if only the constraints on technical knowledge (and therefore power) could be overcome.

<1> Artist-magicians

These roles of artists as magicians can be used to assess the epistemological impact of digital art and the processes of altering spectators’ perceptions that might, (paradoxically) through concealing, reveal inner truths about our technologies and their social structures. We will look at five of these “magical” practitioners who manipulate digital reality in the form of artworks. Notable in many of these artists’ works is that a given project will span a number of years, reflecting the iterative and experimental alchemical process between science and mysticism, as well as the magical quest more generally as a personal journey, a search for knowledge, and a series of transformative practices through time.

<2> Pascal Dombis [11]

The algorithmic art of Pascal Dombis uses generative processes to visually express the functional reality of digital technology. To enter his studio is to step into a fractal dimension, a hall of mirrors for our technologically-mediated reality. The walls are lined with stacks of lenticular images, each one a window into a magical landscape of information, a portrait of an otherworldly digital entity. By using computer code as a malleable force, he performs alchemy by altering external reality through a combination of esoteric knowledge (the code) and subjective transformation (in the interplay of perception and spectatorship). He uses large numbers of iterations of simple code fragments, whether drawing lines or searching the internet for words or images, in order to generate works that appear chaotic while adhering to the rigid structures of the program. This process of exposing the inherent irrationality at the heart of excessively rational computation. His works are presented in a quest for the limits of knowledge and of the scientific control over technology, adding something intangible, something other. Dombis thus summons forth demons, calling upon the ghosts in the machine, thereby taking on

the mantle of necromancer as he exposes the life that can be found through the cracks in our everyday reality. These cracks also expose his role as an illusionist, particularly in the physical presentation of his works. Prints and screen animations are covered in lenticular lenses, creating a physical parallax depending on the movement of the viewer. Our subjective perception creates the specific substance of these illusory works, while the experience as a whole reveals the mediating structures the artist has imposed on our ability to view the works in their code-based entirety. Drawing these powers together, Dombis becomes the sorcerer, manipulating digital and physical realities to create a new realm composed of "irrational environments" [12]. His balance of chaos and order echoes the struggle of mystical forces in maintaining and altering reality, while his negotiation of both the underlying and mediating structures places his art in the magical space of altering the spectator's epistemic structures of reality.

<2> Anne-Sarah Le Meur [13]

Describing herself as an alchemist [14], Anne-Sarah Le Meur actively engages with issues of the technomagical manipulation of perception and reality. However, the fleeting shapes that appear in her generative works take on a performative quality in their minimalist and evolutionary movement. She is, then, perhaps better placed as a necromancer, bringing ghostly life out of computer code. Of particular note is the series *Outre-Round*, which projects her shifting amorphous shapes onto a 360 degree display. Her magic here becomes that of the illusionist, for the work tracks the spectator's view and moves the projection to lie always at the limit of the visual field. The forms disappear when the observer tries to look directly at them, restricting our perception of these magical beings to that of liminal apparitions. This move beyond the interface is labelled three-dimensional, but there is more at play than that. On one level the image itself remains a two-dimensional projection, while the movement of the projection around the screen is one-dimensional along the line of the periphery. The work therefore takes on a fractal dimension, being greater than the physical space it occupies and not measurable in terms of familiar integers. The mystical dimension bursts forth here, offering us a view into the magical domain of code and art. This expansion beyond the projection occurs also in works that are in public spaces, such as *Vermille* adorning the walls of Parisian streets in Nuit Blanche. Her art thereby invades our everyday reality, bridging the gap between the magical and the mundane in a night of mystical happenings. Le Meur's spectres challenge our conception of familiar places and her sorcery power becomes visible, if momentarily, for all to see.

<2> Antoine Schmitt [15]

The emergent nature of magical-digital reality is expressed in relation to issues of freedom and control in the work of Antoine Schmitt. His generative animations are formed at the level of individual particles or pixels that exist in collective autonomy, dynamically creating visual spaces according to the set rules of the coded world. The sorcerer commands initiate worlds that show conflict and unknowable spaces formed by the ghostly and anonymous digital agents.

Black Square is formed as an impenetrable shape at the centre of furious activity as great numbers of particles individually swarm around the space, echoing our own quest for knowledge as they strike but never enter the eponymous square. We as observers cannot interact with the magical realm at the heart of the work, mirroring the impenetrability of hidden computer code. Similarly, *War* pits opposing groups of coloured particles against one another in a magical battle mixing rules of computation with emergent self-interaction. Schmitt also engages more directly with magical practices, particularly those of the necromancer, in *Psychic*, an “invisible film”. This audible but unseen work describes its own reality through text appearing on the screen, reducing the animated view of the filmic work to the words of power that control it. The shifting access to such spaces occurs also in *Doors++*, which offers a projection of constantly mutating doorways, ostensibly to nowhere but suggesting an abstract space beyond physical reality. Finally, as the illusionist, his *Quantic Space Ballet* renders visible the unseen forces of our material universe using augmented reality to overlay our everyday perceptions with the magical movement of otherworldly structures and visual abstractions. These manipulations of power and perception afford us a glimpse at, if not the unknowable forces themselves, then the means by which we might speculatively peer into the technomagical realm.

<2> Dmitry Morozov [16]

Beyond the abstractions of code, Dmitry Morozov embodies the alchemical process of magical science at the level of hardware and energy. Many of his works use digitally controlled mechanical devices to manipulate light moving through space and thus render visible aspects of physical reality that are usually unknowable to everyday human perception. *Graviton* and *Wave is my nature* both offer the spectator an opportunity to look beneath the veil of classical physics into a realm that fuses technology, particle physics and a magical experience of digital performativity. The mediating structures of our access not only to these energies but to the wealth of information available online is further exposed in the illusory manipulation of wifi networks in *Hotspot Poet*. By feigning a wireless hotspot, but repeatedly changing the name of the network, the work gradually reveals the text of famous poems. This structure echoes the gradual revealing of the mystical arts to those who would embark upon the quest for greater understanding. The direct illusion of perception is furthered in *DDoS*, a networked performance that draws upon the necromantic arts to bring four laptops to life as they generate glitched images according to their own internal logics and interactions. Across his works, Morozov occupies the role of experimental practitioner, controlling the means to access secret knowledge and hidden energies.

<2> Zaven Paré [17]

Zaven Paré fuses alchemical, illusory and necromantic practices in the quest to create new digitally controlled subjects. His *Electronic Puppetry* uses a combination of physical mannequins (or parts thereof), mechanical structures, and digital projection and sound. The mix of media and interaction displays the number of different skills and disciplines required to create the magic of artificial ‘life’. Meanwhile, he labels the customised keyboard that controls these

puppets as “not an interface”, displacing our knowledge of where control really lies. While the magician invokes these otherworldly beings, they take on a life and power of their own. His work plays with notions of subjectivity, control and the role of the artist in technological machines. Paré furthers this relation to obfuscated and esoteric knowledge in his visual works. The *Untitled* (even this naming suggests hidden or unattainable mystic knowledge) series of drawings combines technical diagrams with physically drawn images that recall biological structures. These pages appear as a codex revealing information about a strange science that goes beyond conventional learning. As the alchemist, and indeed the various magical paths an artist might take, Paré treads the line between science and magic, between the appearance of objectivity and the subjective experience, wrapped in the staging of (the) art as concealing and revealing new forms of knowledge and systems of control.

<1> The magical quest of digital art

The works of these artists display the process of thinking, making and showing digital art as a quest for knowledge and its limits. This quest is fourfold. Firstly, it is a search for direct knowledge of the underlying technology. The artist-magician attempts to reveal something to their spectators concerning the inner workings of a realm that remains forever unreachable. On the screen or other interface we are able to see and therefore stage a relation to the hidden reality of data and code. Secondly, it is an examination of the constraints of these interfaces. The process of revealing itself can uncover insights into what remains concealed, and the means by which we might make further revelations. The codes and commands of the medium must always be understood in relation to our ability to perceive them, which can be made clear through the negotiation of absence and presence in the magic “trick”. Thirdly, the quest is for knowledge of the socio-technical structures through which the magical spaces of digital reality come to control our everyday physical and social realities. Uncovering these methods by which perceptual and epistemic barriers are created can reveal the acts of concealing instigated by controlling parties who seek to maintain their monopoly over technology, knowledge and power. Finally, the quest of digital art is a search for oneself. Just as the structures of language define our internal structures of thought and understanding, so too do the specificities of our technologies define how we learn, think and act in a digitised society. As Marcuse, writes, art takes the same role as technology in creating alternative universes, but for art they are realms of pure illusion and do not change the world itself but rather our consciousness of it [18]. Understanding these forces, further combined with political and economic pressures on creative processes and influence over access to knowledge and technology, allows us to use digital art to embark on an ongoing quest to reveal the social, economic, psychological and cultural relations between one another. Through this collective creative process we can show the mediating processes that define how we phrase questions about society and culture, and thereby attempt to rephrase the questions, to rewrite reality. By manipulating the flow and representation of data to expose the power relations that come from the manipulation of knowledge and its limits, digital art allows us to create a new reality. Gaining knowledge of this impossible realm reveals the limits of the possible and blurs the boundaries between art, technology and magic as mutually creative, reality-altering practices.

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