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What happened to the subject? Mediated anticipation in neural painting

Abstract: This paper presents a phenomenology of artistic painting as an anticipatory process. I propose that the artist seeks to establish a state of equilibrium in a model of self-awareness expressed and represented in a self-constituted physical artefact intended to communicate to others, not representationally but affectively. 'Neural painting' is an arts-based research method employing a simple computational model of human aesthetic discrimination to study the creative realization of the artistic image. I use this method to explore the relationship of self and 'other' in computationally mediated self-portraiture. I develop an image in an exchange with a neural network by reflecting on its output and inputting autographic modifications to those images, blending visceral gesture with the 'black box' of artificial intelligence (AI). Through this deeply personalized and perhaps agonistic interchange between organic self and algorithmic reflection, I seek to expose the tacit mediation implicit in the technical artefact, opening an understanding of the existential relations between natural systems (the artist) and technical entities positioned as collaborators in an *anticipatory aesthetics*.

Keywords: creative systems, anticipatory aesthetics, neural painting, AI art, creative process, machine metaphor, practice as research, self-portraiture

1. Introduction (The birth of a painting)

> To know what you're going to draw, you have to begin drawing.
> Picasso

1.1 Why 'AI portraiture'?

In this paper, I take the position that artistic painting is an act that seeks to expand awareness of self. I claim that through intentional, affective gestural acts, artists express embodied meaning through the translation of tacit worlds into physical artefacts meant to convey and resonate with inner experience, an intersubjective re-presentation wherein 'all those moments otherwise lost in the flux of experience are made into an enduring configuration accessible to others' (Crowther 2016: 114). Art is therefore a method of communication, and in our computationally embedded world, that expressive communication is increasingly mediated by opaque technologies. It seems reasonable therefore to ask what affective factors are embedded or discarded in the trace of the algorithmic artefact's appearance and what a phenomenology of the (artist)-(technology)-(artefact) relation might reveal about those factors implicit in the context of that appearance. I want to enter these questions as a way of looking at the self from 'outside' as it were, to reveal by distancing the human aspects of the creative process when human intention is intervened upon by computational technology and, by creating a portrait of the self, to create at the same time a portrait of this 'invisible' algorithmic *other* through the resonant pattern response of its perturbation of human expression.

To initiate an exploration of these questions, I will explore the process-related entailments of artistic interaction with an artificial neural network (ANN). I conceive of this interaction as modelling an anticipatory relation, meaning that the artist employs neural network response to human-generated input to augment and extend the range of potential expression of the mental image that lays tacit in creative intention. *Anticipatory systems* (Rosen 2012: 313) are here understood as those systems where dynamic exchange between subject and environment is mediated by the subject's future-oriented projection upon that environment in the form of an information-image constituting the fruition of the being-in-the-world. This image is freely adaptive within a set of fuzzy definitional constraints that describe the boundaries of the subject's viable existence where self-awareness is paramount. My motivation is therefore the furtherance of a disciplinary self-awareness, a pragmatic investigation of 'coming to know in the first-person' (Depraz et al. 2003: 3) through creative praxis. *Praxis* here is the pragmatic assertion that creative acts constitute 'the privileged site of the grasping of subjective experience' (Depraz et al. 2003: 161), an insistence that the validity of knowledge can only come from its implementation by a situated subject. The artistic image, then, takes on an implicit self-referential bias through which I investigate the phenomenology of the technical aesthetic artefact and its curious entanglement with the existential alterity (Ihde 1990: 97) of

'artificial' intelligence. The algorithmic mediation of artistic intent in the I-AI exchange promotes an ambiguous *intimacy* that enters creative praxis. Now, to reach a state of resonant self-expression, the artist must probe the affective possibilities of a machine understood as a collaborator more than a tool, an image understood as modulation more than fixation.

Art historian James Hall has pointed out that 'It is widely assumed – and hoped – that self-portraits give privileged access to the sitter's soul, and thereby overcome the alienation and anonymity experienced by so many in modern urbanized societies' (Hall 2014: 7). Yet, Hall argues, the most distinctive quality of contemporary self-portraiture is its 'tendency to conceal or suppress' (231). I would like to explore the extensions of this concealment in AI art, exacerbated as it is by the already ambiguous encounter with the technology of its expression, to question the aesthetic implications of algorithmic mediation of affect. In this investigation I propose that the somatic feedback of *recognition* in a phenomenology of self-portraiture offers a reflective approach to the algorithmic image that might overcome the potentially alienating displacement of intelligent technology.

1.2 Neural painting – what goes 'in' to the AI image?

AI tools are markedly different from the tools used traditionally by artists embodied in cultures of creative praxis over diverse stylistic histories. AI operates on high-order statistical information in ways opaque to human perceptual faculties and experience. This opacity has led to an ambiguous relationship with the 'black box' of artificial intelligence. This intervention of the new upon the traditional, or as I frame it here, of the algorithmic upon the autographic, affords us an opportunity to examine how human intention undergoes implicit mediation by the very technologies we design to support and augment those intentions. We are thus given a method of reflexive observation of creative anticipation through its perturbation.

Neural style transfer (Gatys, Ecker, and Bethge 2015) is the use of an artificial neural network (ANN) to blend abstractions of the supposedly separable visual aesthetic elements of content and style. In neural style transfer the image *content*, or what might be thought of as the image's 'representational dimension' (or 'form'), is separated from the *style* (colour and texture distribution) statistically defined on another image. These two abstractions undergo functional convolution involving a cross-correlation of their statistical image-spaces, based on a model of perception that is drawn from what is understood about human neural response to visual stimulation (Kleene 1956). The software used in this study, (McCaig and DiPaola n.d.) allows for multiple style images to be applied simultaneously to a single content image with convolved weighting between the relative influence of those styles. This opens to the artist a vast latent space of possibility in the algorithmic development of the mental image.

I utilize style transfer in an interventionist manner, as a method of disrupting anticipation in my process of expression of the tacit self-image. I do this to introduce an element of the 'conditionally unexpected' into painting, a traditionally pragmatic activity that is usually

conceived of as a reflective process, motivating the query as to how AI modulates human expression when intention is mediated by opaque, 'quasi-autonomous' technologies (Ihde 1990: 100) positioned as collaborative agents.

The image praxis deriving from this medium, which I call *neural painting* (Choi 2018), is a subjectively driven algorithmic collaging of meta-textures. The image development process is more akin to *frottage* and *grattage* – techniques of artistic automatism introduced by surrealist Max Ernst (Spies 2006: 12; Ernst [1948] 2009: 7-14) – than the explicit actions of autographic painting. In neural painting a level of abstraction is offered for creative manipulation that is unavailable to strictly autographic modelling where intention and mediation were formerly unified in the physical gesture. AI exposes the hidden, embedded aspects of the *potential* gesture, opening a workspace of *anticipatory aesthetics*.

The question I wish to explore here, is what happens to creative praxis, human expression, and the 'transparency' of reflection in AI 'portraiture': what does the self-image become when the self is displaced by the method? What happens to the subject?

1.3 The anticipatory dimensions of neural painting

I claim that the things the artist 'sees' in their work are drawn from a cycle of embodied perception and expression. I draw from Neisser's (1976: 130) conception of the mental image as 'perceptual anticipation' here, as well as constructivist approaches to the science of vision offered by Richard Gregory when he proposes that 'perceptions are predictive hypotheses, based on knowledge stored from the past' (Gregory 1998; see also 1980). I hypothesize that this embodied seeing, enhanced by the high-level abstract pattern recognition and enhancement of AI image processing, promotes emergent pareidolic phenomena in the image and that this implicit self-recognition is what artistic sensibility resonates with in the praxis of neural painting. Here, the 'self' portrait is conceived as an emergent phenomenal experience, in accordance with the self-entailing constructive feedback of Douglas Hofstadter's notion of the self as a 'strange loop' (Hofstadter 2007: 103), 'an *outcome*, not a starting point' (284). In the self-portrait, what appears before the mind is mediated by what comes toward it from the future and what constitutes within it from the past: anticipation entails the self with time and the process of becoming, the image of the self is a concept, an analogy of experience, or 'a system that arises from the experience of authorship' (Wegner 2003: 12).

This approach suggests a 'reflective' and an 'expressionistic' dimensionality to human perceptual experience. The 'image' is culturally and socially constructed and embodied. We see what we know, and we have certain embodying and embodied parameters we can change and others we cannot. Thus, we reflect on what is presented and we express intent upon changes to be made. Vision held this way is anticipatory; the image is yet to appear but is 'expected,' temporally suggestive. Visual anticipation –the mental image– is composed of affective visual propensities. AI serves to enhance this anticipatory affectivity by presenting

to the artist a data trace of process that feeds back into that process in a ‘strange loop’ of self-referential composition iterating over reflective experience.

1.4 Stepping back from praxis – an empirical approach to art making

An artist composes an object by exploring relations between material and immaterial entities. As living processes, artistic acts cannot easily be deconstructed into components. A clear difficulty in a phenomenology of artistic self-observation is the need to ‘step back’ from the inextricable intimacy of context. The artist needs a tool to ‘bracket’ (Ahern 1999: 408) out those entities that are determined to be irrelevant, or below some threshold of attention, to identify those entities Dewey says to be contributing to an experience of *undergoing* or selfless receptivity (Dewey [1934] 1958: 44). The procedure explored in this study offers a technological counterfoil to traditional autographic presumptions, displacing the artist from the work somewhat, ‘stepping back’ by close observation, affording a remote viewing of the artist *in* the work while at the same time exposing the embedded interplay of the tools of expression. The method thus offers a technological dialectic of AI self-portraiture as an aesthetics of mediated self-awareness.

2. From mental image to neural painting – the journey from self to other and back – a method

2.1 Methods, procedures, desires - The Cargo Cult

Image theme. In my reflections on the image of self-emergence in the technic lifeworld a narrative forms around the historical emergence of 'Cargo Cults'. These were complex sociocultural phenomena that developed in the Pacific Islands when ‘primitive’ cultures encountered the activities and later disappearance of more advanced cultures. This historically transient interaction resulted in the formation of social fetish practices that seemed to seek desire for a richer remembered life through ‘imaginative projection’ and ritual (Inglis 1957). This appropriated narrative suggests to me that as we build and embed artificially intelligent technologies into the qualitative mediation of our social practices, arts and humanities, we perhaps unwittingly come to rely on models we do not fully understand and hence cannot reproduce, but instead *project into*. A kind of self-effacement develops. We become residents (perhaps ‘reticents’) of a computationally pervasive environment, awaiting the return of an *other* that has been culturally embodied in a ritualized transparency. It is this ritualization of the embedded ‘aesthetic’ of computation in contemporary cultural practices that I appropriate as a narrative trope encapsulating the anticipated return of a manifest self-image, a projected naturalism upon some *requisite* future, an attempt to conjure back the image that was at first imported, literally pre-reflective, a copy of a copy before it ever entered the constraints of artificial intelligence. The self-portrait –as trope– becomes a seeking of the resonant life-image against all diversion, a narcissistic impulse subsumed within the machine that cannot be found in its iterating expressions. The image should reflect the self, bring forth a *fruition*. A cult of faith ensues - we know we’re in there somewhere,

else what is this machine offering us? The Cargo Cult metaphor focuses attention on the imaginative desire to find the self in the 'other', but an implicitly reengineered self, predictable, reliable, yet curiously absent. Reflection on this aesthetic informs an inference projected upon some future iteration of the painting-to-be. (Figure 1).

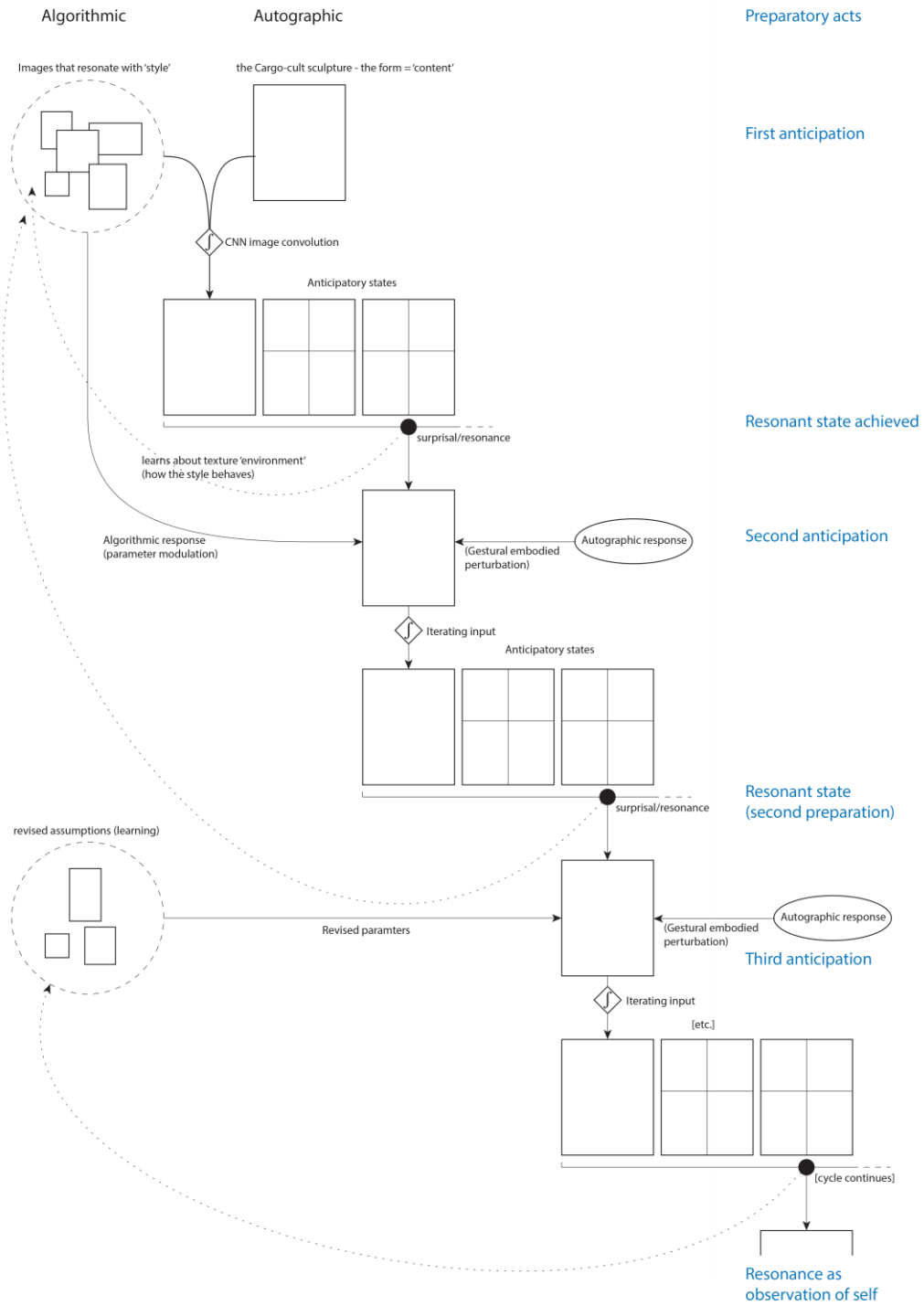

Figure 1: The cycle of the algorithmic/autographic interaction employed in the 'neural painting' process discussed in this paper. The illustration is therefore an anticipation of a process to come – praxis mapping as meta-anticipation, the occult code of *The Cargo Cult.* Illustration by SK Choi, 2020.

Approach. In the development of the neural painting *The Cargo Cult - A self-portrait* I take each iterative cycle of autographic painting as the input encoding of the current 'style' (Figure 2, upper left side row) and physical modifications to the original sculptural object on which the painting is based as the 'content' (Figure 2, lower left side row).

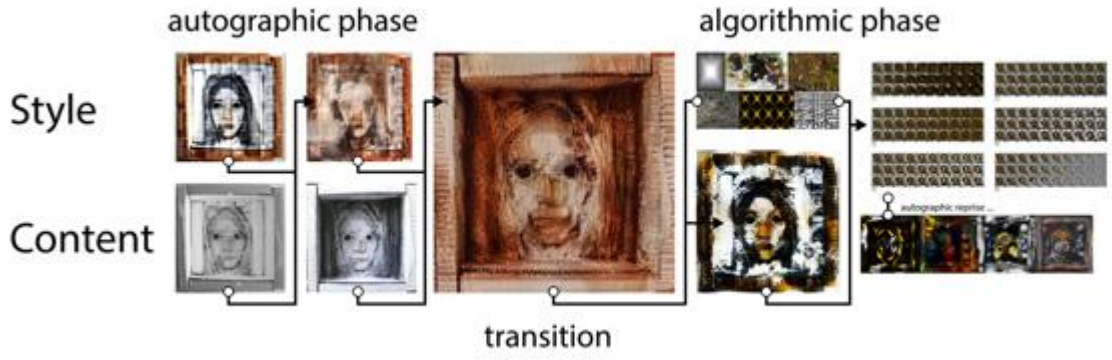

Figure 2: General stages of the 'neural painting' process. 'Style' and 'content' images are statistically convolved in successive reiterations with intuitive changes to style and explicit changes to content. After the transitional point, when weighted multiple styles enter the convolutions, style and content become increasingly entangled. The cycle informs the phenomenology presented in the discussion. All images by SK Choi, 2020.

In this way, I set up a dynamic that constantly tries to progress toward a resonant vision of the self through preparatory acts but which the AI structurally remediates in terms of its model of the 'content'. Preparatory acts are always for some intended future outcome; they are anticipatory gestures towards a future state. I am therefore positioning the essential subjectivity of style as an autographic modification of an environment according to motivations of aesthetic self-preservation and development, whereas the AI provides a metaphor for a resistant environment that has itself entanglements with intentional processes (such as network training) that extend beyond the scope of the artist's control. The theoretical position maintained in this paper is therefore derived from a theoretical-pragmatic reflection on painting positioned as an anticipatory system. This move ties the tacit mental image to an algorithmically derived and mediating artefact.

'Style'. My process begins with collecting found textures; organic, natural, industrial and mechanical structures (Figure 3). These data combined constitute the environmental 'source' of a trace through an anticipatory style that will lead to an image, an image that reflects context, a 'self' portrait of embodied space. It is the relative balancing of these textures that becomes the artist's 'brush' in neural painting which is by design abstracted away from the human or 'tactile' world. Why 'abstraction'? I suggest the abstract ('non-representational')

image promotes a less biased eye: the viewer seeks meaning in the image and reads it in a questioning reflective mode rather than being at least immediately distracted by recognizable referents. In this way I leverage the quizzical eye to explore what might be found rather than what is. Neural style promotes reflection by resisting explicit representation.

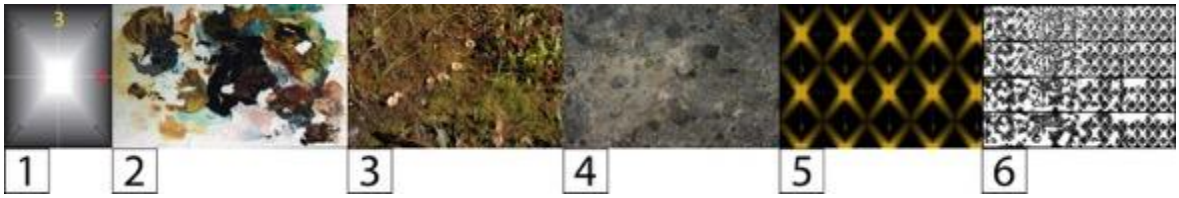

Figure 3: Preliminary style set – a collection of three natural (2, 3, 4) and three computationally generated (1, 5, 6) textures.

'Content'. I start with a photograph of myself, disenfranchised, captured by a government camera. Government-issued 'identification' is not a good self-portrait. It is probably the exact opposite of a self-portrait, so a potential is encoded from the beginning whereby the self tries to emerge from the other. Official identification is stripped of feeling, the straight-on mug shot, supposed to represent the 'real' me yet is definitive of the iconography of machine surveillance, the self in the machine. As Joanna Zylinska has argued, the 'conjoined human-nonhuman agency and vision' complicit in the photographic image 'functions both as a form of control and a life-shaping force' (Zylinska 2017: 2). The work thus embodies a self-criticality, and this becomes part of the nature of self-portraiture: the goal always lays somewhere beyond the possible, otherwise perfection would be attainable. This image constitutes the 'source' of the structural dimensions of the future artefact. Next, reflecting on technological primitivism mimicking the image of cultural sublimation, I fashion with rough materials, a sculpture, a crudely 3-dimensional artifice that calls out to the computational 'box,' a surreal effigy capturing the primitive embodiment of an expanded self in response to the loss of mythical cybernetic gods. The sculpture is initially colorless, neutral, capturing only the play of natural light. It is gradually modified towards an increasingly parodic mimesis of computational technology (Figure 4). In my process narrative I imagine a ritualistic gathering of ready-to-hand materials by posthuman primitives to conjure up the return of intelligent machines. The 'content' becomes an altar holding the cherished memory of what once was, the thing we built but forgot how, a machine intelligence now finished with forming a world from which it has removed itself.

Figure 4: *The Cargo Cult* sculptural content object in successive iterations: The picture 'frame' moves towards the metaphor of the 'computational black box' in successive stages, and the physical modifications in turn respond to graphic features discovered in the early output tests of the neural network's styling of the content. Constructions by SK Choi, 2020.

Method. The 3-dimensional iconic sculptural form, the *Cargo Cult* object, is taken as the environment acted upon, as 'content'. The artist's gestures, the 2-dimensional autographic actions painted in response to the neural network processing, and a collection of texture samples captured in my exploratory 'sketches' (hand-drawn, photographic, and computer-generated), are taken as actions upon that environment, a 're-styling' of the current state of the (processed) content. This evolving 'style' –the affective target the artist tries to achieve– iterates through autographic (manual) modifications to algorithmic (computational) output, entering a cycle of expression and reflection. Curatorial decisions resonate with the anticipation of what might emerge at a future stage of the cycle.

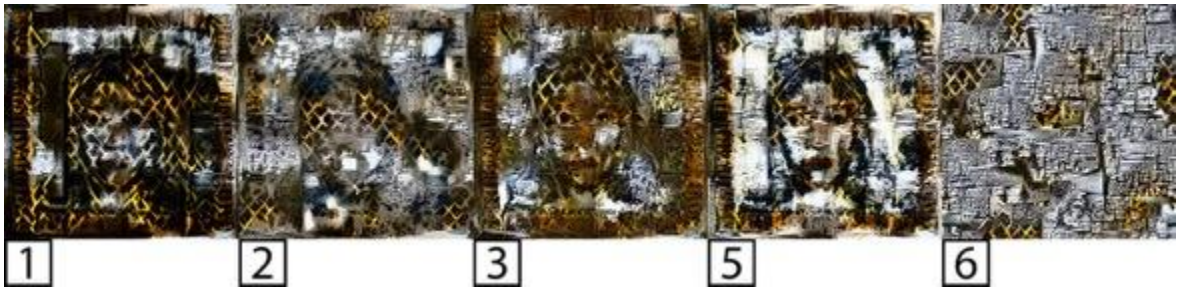

Figure 5: Result of the processed *Cargo Cult* sculptural content object from Figure 5 convolved with style weight variations applied using the style image set shown in Figure 4. All styles are applied in each image, but each is weighted 5x more than the others in this series (so for instance style image 1 is here weighted 5-1-1-1-1, style image 2 is weighted 1-5-1-1-1, etc.) The 4th style results were not found interesting and were abandoned - an instance of resonant aesthetic branching. © SK Choi, 2020.

Procedure - Phase 1. The 3-dimensional 'content' that had been incrementally evolving is painted over (autographically) - an affective reaction drawn from the artist's (embodied) library of 'styles'. This embodied response guides the algorithmic style model in future iterations and is convolved repeatedly with the last-stage sculptural content image at varying scales and degrees of influence (Figure 5).

Figure 6: Iterations of style and content with style scale increasing from top to bottom and content influence increasing from left to right. The artist determines points of visual resonance and aesthetic branching in a wide 'affective palette'. © SK Choi, 2020.

Procedure - Phase 2. At this stage I reach the point where I begin to consider the painting as a content-surface (Figure 6). My prior manipulations of the affective style space seem suddenly to be oblique gestures towards refashioning the genesis of form not the precise appearance of that form. I realize the 'collaborating' machine has somehow ordered the image in terms of an 'affective palette' that I have been tacitly expressing through my input images and commands. I begin manipulating pixel relations between and across iterations, building composites across time.

Figure 7: The image cut up into tiles which will be mounted on canvas to allow for larger autographic gestural interaction. © SK Choi, 2020.

Procedure - Phase 3. At this stage I seek to force body scale gesture into the process by adapting my mark-making to the constraints of a larger physical space. The digital image (essentially 'dimensionless' yet limited in terms of its rendered print resolution to something in the range of letter-sized paper) is scaled up using yet further AI processing (a commercial product –GigaPixel– employing AI texture synthesis to complete algorithmic expansion of the pixel grid) to fill a print resolution image measuring 36 inches by 36 inches. This is transferred to the artist's canvas to be painted over in a traditional autographic manner, with the intention of embedding full body gestural acts into the continuing process (Figure 8).

Figure 8: The scaled-up neural output and the painting that emerged working at autographic body-gesture scale. The process revealed a surprisingly different relation to the image space and the pareidolic clues perhaps embedded in it. Whereas the small studies using network output tended to result in 'tracing over' feature details, the larger scale painting elicited a completely different response. Mixed media on canvas (36" x 36"). © SK Choi, 2020.

Procedure - Phase 4. The method seeks to identify the phenomenological extents of resonant response in the interaction with the neural network. I originally intended to take this process through enough iterations that it completely disappeared, i.e., approached a terminal condition where successive iterations produced no perceptible change or only limited resonant response. It turns out that this limit is reached rather more quickly in human response than in network processing ability. The human artist at some point simply 'exhausts' engagement with the repetitive cycle and cannot compete with the iterative frequency of the algorithmic and non-physical. Yet at the same time, a state of equanimity may be reached where the artefact captures what the artist had hoped to find, a representation of some inner resonant reflection of the self at that time, in that image space (Figure 9). The artist moves away from the image as they move closer to the self. When the painting is finished, the cycle begins again.

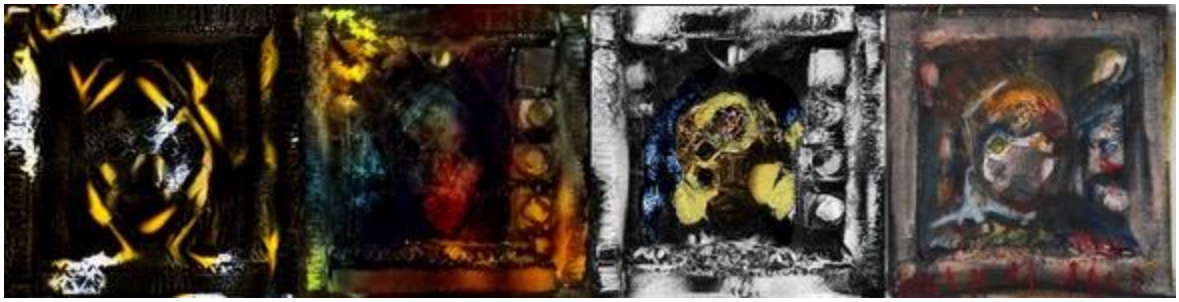

Figure 9: Endless variation is encountered in the process of resonant self-reflection. Here four studies are shown. From left to right, the first is purely generated by the neural network, the second a digital composite of

network output, the third a digital colouring of network output and the fourth autographic drawing on paper over the same output image as the third. © SK Choi, 2021.

3. Anticipatory dimensions in neural painting praxis – a discussion

3.1 Anticipation in art

The motivation for aesthetic praxis has been described by Paul Crowther as 'the satisfaction of externalizing oneself in a medium where one's rational and sensible-imaginative capacities are optimally integrated' (Crowther 1993: 93). 'Optimal integration' in the self-portrait must rely (at some level of awareness, from tacit to explicit) on keen self-observation and its entanglement with feeling. This entanglement is in turn tied up with an anticipation of the embodiment of knowledge. I submit that process relations between the abstractions of rationality, imagination, and the experienced lifeworld as encountered in aesthetic perception, must be critically anticipatory in nature. Crowther further posits that the advance of art 'will only be through the use of different art media to illuminate specific aspects of our relation to Being,' a process which 'emphasizes the exploration of what is distinctive to one medium in the context of features that are distinctive to others' (Crowther 2016: 124). Taking direction from Crowther, in this Section I will discuss the anticipatory aspects of externalization/actualization in artistic process in a review of the interplay of the autographic and algorithmic dimensions of 'neural painting'. I hope to show that the process of cognitive and affective integration central to aesthetic distinction grounds the artist's anticipation of immanent self-awareness embodied in the work of art.

3.2 Observations of process

3.2.1 External and internal space. Autographic images are simply, but importantly, 'pictures created through physical labor—rather than mental pictures' (Crowther 2017: 25). It is this essential tactility in the autographic art-making process that gives to such images a particular phenomenology entirely distinct from digital imagery. On the other hand, neural paintings are those aesthetically resonant images that are the product of an artist's intentional manipulation of the abstracted image data passing through an artificial neural network, with the goal of forming a visual artefact modelling the artist's 'crafted' expression of, and reflection on, the mental image. In neural painting the tactile sense is displaced, limited to keyboard presses, and the image is from the onset encoded in a fundamentally different way than in traditional, non-computational media. Paul Crowther proposes this computational phenomenology 'takes a special form, precisely because it appears to transcend mere autographic production' (Crowther 2017: 152). The praxis methodology I explored in the previous section derives from the dynamic exchange between these forms, an autographic interaction in an artificially intelligent media ecology that exposes the extension and disruption inherent in this 'transcendent' medium.

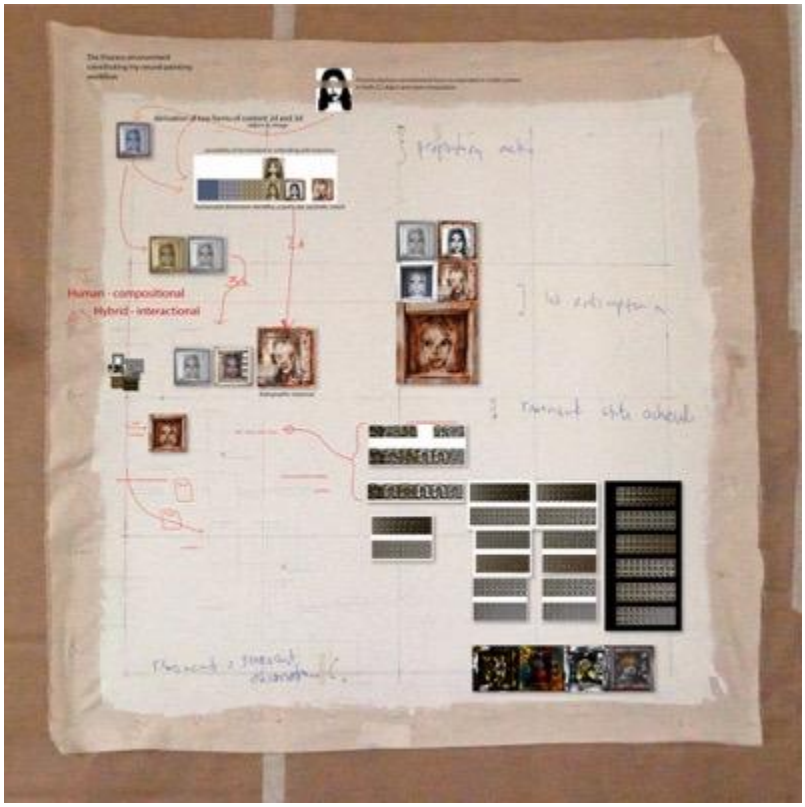

Figure 10: The transcendent meets the autographic: The observed cycle of the algorithmic/autographic interaction as actually encountered. The structure of process is revealed as having richer extensions than schematically anticipated. These are evidence of branching resonant response cycles. Due to the factors of spontaneity and *flow* (Csikszentmihalyi 1990) it is difficult to fully deconstruct past events in strictly causal ways. The modified diagram, therefore, appears in rough 'collage' format as an attempt was made to decipher the sequence of ideas, events, and their 'strange loop' entailments with the re-construction of identity. Illustration by SK Choi, 2021.

The creative process, entailed with an unfolding revealing of the anticipated yet somehow unsuspected, is perhaps reminiscent of Borges' (1948) *The Garden of Forking Paths*; a rhizomatic return to origins in a strange loop of meta-awareness. In neural painting every node in the process potentially links to a set of multiple outcomes. Neural painting extends beyond the singular artefact in the web of recorded associations it generates at every turn. The painting is 'temporally thick', leaving behind not the 2-dimensional surface of the strictly autographic metaphor but something more ontologically related to layered Markov blankets rhizomatically connected across time. The neural artefact is ultimately an array of values in *n*-dimensional space, any node of which can be *potentially if not resolutely* adjusted to generate subtleties of response. It is a system of relations more than a fixation. Endpoints may be printed but they are only moments in a journey of seeking a portrait of the self which is ever changing. Furthermore, as Jon McCormack has observed, 'for most creative domains the idea of evolving towards a single optimum is counterintuitive' and, importantly,

> 'The trajectory through a creative space is not one of incrementally optimising towards a single goal or fitness measure, rather it is a complex pathway through a series of

> intermediate and changing goals, each of which may determine the pathway of the next, and may be creative in its own right.' (McCormack 2012: 44-45)

In this process (Figure 10) I have noticed two primary ontological entailments, reflecting the praxis' approach to space and time. In terms of picture 'space', the interaction with that space, or compositional 'control', is limited to the anticipatory manipulation of input data in the attempt to encourage the emergence of resonant form, a process I have elsewhere called 'sculpting the tacit' (Choi 2018). Unlike the embodied autographic linkage of hand and eye, in the neural image we are seeing the reflection of our input through an algorithmic model of visual processing, a blending of perspectives, I and AI. There is an aspect to the algorithmic surface that is foreign to our experience of looking at and working with natural surfaces. The neural image is implicitly organized according to what the network has learned about the way scientific, corporate, and cultural institutions represent meaning. These embedded interpretations do not emerge during artistic composition as re-presentations blended with present input, they undergo an algorithmic metamorphosis, reflecting but not explicitly revealing their sources. The neural image is by nature an algorithmic artefact and its composition is parametric, not intuitive. In autographic praxis the artist is situated within an immediate tactile-gestural image space that is ontologically distinct from the latent image space of algorithmic indeterminacy presented in the (distanced) interaction of neural art. Changes in higher-order algorithmic statistics mediate the reception of the neural image; there is a strange sense of frozen temporality that yet suggests constant change when looking at these images (Figure 11). It is this technical separation from a still-present self, in the neural self-portrait, that inspires a 'looking in' motivating an integration of the affective and cognitive in the anticipatory aesthetics of neural media.

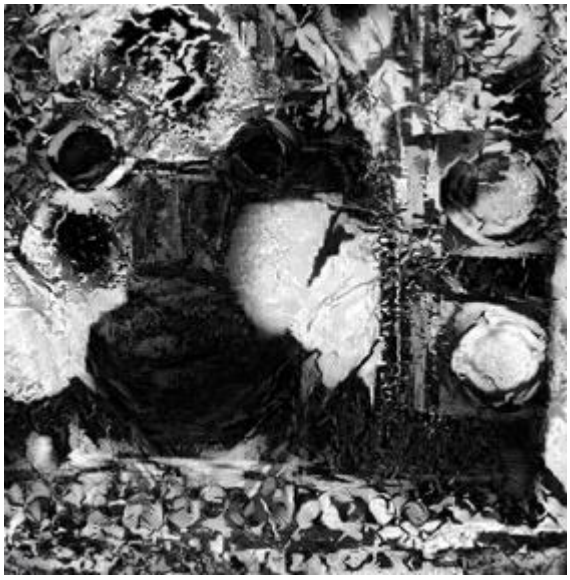

Figure 11: A texture fragment sampled from the work in progress suggesting (non-human) organization and blending of organic and mechanical referents. The eye's traverse across potential referents embedded in the neural surface promotes tacit cognitive awareness of a changing gestalt, inducing perceptual discontinuity often perceived as pareidolic phenomenon. © SK Choi, 2020.

3.2.2 Time and Resonance. AI also disrupts and extends the temporal ontology of praxis. The sentiment attributed to Picasso, 'to know what you're going to draw, you have to begin drawing' points out that dynamic praxes deepen contextual awareness. In neural painting, the 'fringe' of the 'specious moment' (after James 1910) 'opens up' to put the artist in a more phenomenologically transparent relation with disciplinary self-awareness, 'a readiness or dispositional tendency for action in a larger field of specific ontological readiness' (Varela 1999: 299). That is, the procedural iteration integral to neural media praxis embeds the trace of temporality in the residual by-products of image development, and this trace incorporates itself in the artist's interaction with the following outcome. The ability to look further back in time (retention) in richer and reiterable detail inspires equal protension toward the future; multiple potential outcomes must be considered, contributing to anticipatory reflection on multiple emergent selves. One can review past activity and speculate on how that trace of former anticipations may have led to counterfactual alternate branching decisions in the temporally extended portrait, but this review is now itself offset by externalized mediation in the abstraction of numeric code, leading to modified anticipation. Thus, the appearance of the neural image is perpetually transitional and any apparent continuity establishes a constructivist narrative maintained across time by the anticipation of a deepening awareness of this elusive becoming.

Speaking particularly of the temporal emergence of the tacit image in the visual arts, Paul Crowther has remarked, 'we can choose what to imagine and how to change the image, but its quasi-visual fabric—its way of appearing before the mind—cannot be chosen' (Crowther 2017: 27). This 'subjective becoming' is observed in the 'resonant decision points' tracing through the data the previous process has generated. The artist anticipates that the resonant state might be extended into future iterations of a particular emergence and this anticipatory resonance motivates actions intended to manifest those future states. Neuroscientist Christoph Redies has hypothesized that a state of cognitive resonance is the goal of artistic practice. The artist adapts his art to a visual system that, in turn, is adapted to the natural environment (Redies 2007) bringing about the experience of increasing resolve associated with the appearance of a naturalized aesthetic. In the iterative anticipatory praxis of neural painting this resonant state is distributed, becoming a condition of time as much as form. A sense of resolve cannot complete in a singular entity, but rather extends across a series of relational occurrences (see again for instance Figure 6, where the resonant point cannot be located in any one iteration but is drawn more from a region of the latent image space which informs the next anticipated set of actions).

The spatiotemporal encounter with the appearance of the algorithmic image is fundamentally distinct from the autographic. Whereas the embodied image of autographic art forms out of

the continuous building of environmental awareness through the body's motions in temporally continuous physical environments, in the algorithmic (neural) image, colours and forms emerge in a 'fragmented' way with each computational iteration as the image is refreshed every few calculation cycles, displaying barely perceptible changes, 'growing' rather than completing. But it is exactly this externally quantized experience of process-time that offers a radically different 'experience of becoming' from autographic processes. The phenomenology of the neural image's appearance is additive; interpretation is distributed by iterative stages and –in the individual case– across series of small changes, inducing an echo effect in memory and anticipation. I hypothesise this resonant echo might contribute to the emergence of pareidolic phenomena as the mind tries to construct meaningful narrative across the image's emergence. The forming of these cognitive linkages may be related to the origins of affective resonance in the encounter with the AI mediated neural painting.

3.3 Dimensions of praxis

Aesthetic experience has perhaps always been anticipatory; the artist, as the spectator, anticipates a coming revealing, a developing awareness of self-modifying realization or discovery that comes through critical reflection on the artwork. Anticipation, in artistic praxis, maintains a two-fold ontological structure of time and space, a sense of aesthetic appreciation of the imminent and of the immanent. The artist anticipates an appearance in time as well as an emergence of form or shape from the tacit unseen-yet-within.

What I am calling 'anticipatory aesthetic praxis' is here concerned with the phenomenology of the technologically assisted externalization of the mental image, though anticipation as such certainly plays into creative intentionality in a wide range of disciplines and praxes. Don Ihde has shown that a post-phenomenology of technological embodiment relations reveals an 'essential ambiguity' in that technologies 'simultaneously magnify or amplify and reduce or place aside what is experienced through them' (Ihde 1990: 76). The arts-based research entered into in this study has explored this ambiguity to show how the artist's anticipatory aesthetic awareness is both augmented and disrupted by the implicit mediation of human intent inherent in artificially intelligent 'creativity support' technology.

4. Future anticipations

4.1 Anticipatory aesthetic praxis (AAP)

Paul Crowther, in *How Pictures Complete Us*, argues that the intimate relation between the self and the 'experience-object' of art illuminates and transforms the subjective through a presentation of the 'holistic structure' of experience:

> Any present experience is given its specific character through the reciprocal relation between what is given in that experience and a complex horizon composed of past

> experiences, our anticipations of future ones, and our counterfactual sense of alternative ways in which our life might have developed (Crowther 2016: 113).

This curious continuum of awareness between the experienced and the fictive is constituted in the artefact of creative process. The portrait becomes the trace of a situated reflection intended to convey the tacit self beyond the body. The artist-as-subject is simultaneously external to the picture surface and embedded in it, *looking back at the being seeking an answer*, asking after a possibility of communication, toward the anticipation of affective sharing of experience, the concretized dynamics of an interchange representing a system of relations comprising (artist)-(technology)-(artefact)-(other/reprise) –a strange loop indeed. The self-portrait of our times –the zeitgeist– is, most fundamentally, a reflection of this manifest-image (Sellars 1962: 35). Creative process is exemplary of anticipatory projection – that is, we accept that there is something essential in the creative act that intends a specific future outcome and has implications for compositional strategies in the present intended to direct towards that future condition. The anticipatory aesthetic image becomes a shared reflection of a ubiquitous networked embodiment, an implicit mirror we give unknowing amounts of data to in a mediating technological concealment. The technical artefact of art promotes an algorithmic anonymity that the self seeks liberation from in the soulful gaze of its own reflection. In this self-portrait I have offered an investigation of artistic expression as an evolving process of self-awareness leaving in its wake a data-record of affective encounters with the artefactual apparatus.

4.2 Artificial I

What happened to the subject? My central assertion is that the self-image is becoming increasingly diversified –a distributed self, augmented by alterity relations with the technical environment it co-constitutes. The ubiquitous socio-techno subject of today interconnects all nodes in a globally situated information environment. In the AI mediation of experience, self is already coupled with other. If this technic is to anticipate the lifeworld it must remain diligently aware of its ethical entanglement with the implicit mediation of subjectivity.

I have considered how art in the time of artificial intelligence presents the possibility of anticipatory augmentation of the self. AI technologies, threaded through global networks part machine part flesh are already used in implicitly anticipatory ways. In the I and AI encounter it is therefore crucial to acknowledge that we have two choices; to learn to collaborate and anticipate the content of our future or submit to the overwhelming senescence of a disenfranchised environment. I have tried to show in this discussion the ways in which neural media can promote the emergence of the tacit image, offering an anticipatory aesthetics that has the potential to extend the conscious self through an enhancement of the potentiality of reflective praxis and a revealing of the implicit trace of mediation in the subject-technic relation. An aesthetics of the immanent entails a synchronicity of anticipation, responsibility,

and commitment. We are transient image-makers, but the image remains, guiding us toward an always imagined but nonetheless real future.

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