

UCNV Into Supercritical





1 In his theory of the digital image, critic gnck, discusses the decimal pixel in pixel art, which is created within a high-resolution environment. "Because the viewer embodies the principle that dots cannot escape from pixels, [...] a screen with mismatched resolution generates a feeling of weirdness. The viewer's physicality combined with the principle of this artwork creates a sense of wonder." He also connects the aesthetics of digital with the historical paintings such as Edouard Manet's works. gnck, 「電子のメディアムの時代、デジタル画像の美学」, 『スクリーン・スタディーズ -- デジタル時代の映像／メディア経験』, 光岡寿郎, 大久保遼 (編), (東京大学出版, 2019), 329-352.

2 "The glitch makes the computer itself suddenly appear unconventionally deep, in contrast to the more banal, predictable surface-level behaviors of 'normal' machines and systems. In this way, glitches announce a crazy and dangerous kind of moment(um) instantiated and dictated by the machine itself." Rosa Menkman, The Glitch Moment(um) (Amsterdam: Institute of Network Cultures, 2011), 31.

3 Yve-Allan Bois, "3. Formalism and structuralism", in Art Since 1900: Modernism, AntiModernism, PostModernism, Hal Foster et al. (London: Thames and Hudson, 2004), 34- 41.

4 In his book about modern art history, the Japanese artist Hideki Nakazawa points out that new trends of art tend to start with expressionism. "When a new era begins, 'expressionism' submits sentiments as they are the most persuasive." "The flamboyance of early Modernism was marked by French Fauvism which was the extreme form of Impressionism, and German Expressionism. The dawn of late Modernism was marked by American Abstract Expressionism and European In Formalism. New eras always starts with a form of expressionism." 中ザワヒデキ, 『近代美術史テキスト』, (トムズポツクス, 1989), 29-30.

5 Bois, Art Since 1900, 35.



Images this page and front page: im/possible
images installation views, photos: Dominik Gigler,
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EN Apart from the 'normal' three states – solid, liquid, or gas – matter can exist in a fourth, special state, which is the so-called supercritical, fluid state. A supercritical state is reached only under certain conditions of heat and pressure, during which matter has the characteristics of both a liquid and a gas. While scientists are researching how to take advantage of this special condition, which is for instance useful as a solvent or during the decomposition of toxic substances, UCNV focuses on its more 'useless' formalities. In Supercritical, a flag exists in multiple states; the flag as an object, a perfectly rendered image in the frame and as a moving object in multiple resolutions, illustrating how the monitor resolves the image data. All these four forms exist next to each other, conjuring up a „supercritical state,” or „fourth form of matter”.

UCNV is an artist and programmer based in Kyoto. His artistic career started by researching glitches. Over time, he has developed numerous programs that damage image and video files which he has released open source. While he has become known as a glitch artist, to him, the glitch is still nothing more than a means to actualize his research into the material specifics of digital media.

<https://ucnv.org/works.html>

DE Neben den 'normalen' drei Zuständen – fest, flüssig oder gasförmig – kann Materie in einem vierten Zustand existieren, dem so genannten überkritischen, instabilen Zustand. Ein überkritischer Zustand wird nur unter bestimmten Wärme- und Druckbedingungen erreicht, bei denen die Materie sowohl die Eigenschaften einer Flüssigkeit als auch eines Gases annimmt. Während Wissenschaftler*innen daran forschen, wie man sich diesen besonderen Zustand zunutze machen kann, der z.B. als Lösungsmittel oder bei der Zersetzung giftiger Substanzen nützlich ist, konzentriert sich UCNV auf die Formalien des Phänomens. Supercritical zeigt eine gestreifte Fahne in mehreren Zuständen gleichzeitig; die Fahne ist ein Objekt, ein Bild dieses Objekts und eine Ansicht davon, wie der Monitor die Bilddaten auflöst. Alle diese Formen existieren gleichzeitig und evozieren einen „superkritischen Zustand“ oder eine „vierte Form der Materie“.

UCNV ist ein in Kyoto lebender Künstler und Programmierer. Seine künstlerische Karriere begann mit der Erforschung von Glitches (digitale Bildstörungen). Im Laufe der Zeit entwickelte er zahlreiche Programme, die bewusst Bild- und Videodateien beschädigen und die er als Open Source Code veröffentlicht. Glitch stellt für ihn eine Möglichkeit dar, seine Forschung über die materiellen Besonderheiten digitaler Medien zu artikulieren.



UCNV: Supercritical, Videostills, 2021

About Supercritical

Supercritical is the scientific term for a special fourth phase, or state, of matter. A state that can only be reached at a very specific combination of heat and pressure. Under these conditions, there is not enough environmental pressure for the material to turn solid, yet at the same time, the material will neither conform to the liquid or gas state. This is when a substance is forced to enter a peculiar, fourth state of matter, known as the supercritical state. In this supercritical state, matter obtains qualities it has in no other state. For instance, certain substances can act as a special soluble, a trait that has been welcomed by chemists in their quest to extract specific material components.

Supercritical, the title of my installation, refers to this supercritical state of matter in a metaphoric way: the installation highlights that in the digital, certain characteristics of media are only available under very particular conditions. Its installation at the im/possible images exhibition involved a triptych of screens, of which two featured the same video content. The two videos are synchronized to underline what sets them apart: their formal differences. While one screen presents the content as "normal," smooth, high definition footage, the second screen features the same original video but with added moiré patterning, which has appeared due to a reduction of quantitative pixel resolution. In both videos, grapes and curtains appear as key items to prompt this moiré.

Usually, moiré is an interference phenomenon that generates distinctive patterns within an optical system (for instance in our eyes or on the sensor of a camera). It is a visual effect that occurs due to the interference of multiple visual waveforms in the same space of representation. While moiré happens most often in the real world, in Supercritical, the moiré interference patterns are the result of the process of transcoding multiple visual patterns from the real world into a scaled down virtual pixel grid. This means that by scaling down the video footage to a smaller pixel grid representing less than the amount of lines in 'the real,' moiré emerges neither in the real world nor on the computer screen, but as a result of the processing of the video.

An art historical contemplation of medium-specificity

We have all had to consider the characteristics of digital media at some point in our lives. Especially when it appears as noise or failure, we are confronted with the fact that our digital media also have a specific materiality, even if we usually try to ignore or forget about it. Digital artists are, however, bound to confront and explore these specific features of digital media. Sometimes they even make it part of their work, an attitude that is known as medium-specificity. Medium-specificity was first explored by artists of Modernism through new forms and ways of expression, using pictorial tools (their tools for image making). Later on, this practice became

strongly associated with Formalism - a movement that emphasizes form over content or meaning. Finally, Formalism became the subject of harsh criticism, condemned for its rigid and narrow perspectives. Keeping in mind the course of these histories, I ask: is the practice and consideration of digital medium-specificity bound to be criticized to be rigid and narrow - and finally outdated as well?

In this short essay, I offer a nuanced answer to this question: in the digital, medium-specificity isn't fully explored yet, and as such, it is unproductive to abandon its examination. As a starting point, I consider how in the Modernist discourse, medium-specificity coalesces with Formalism. This type of critique is more difficult to transfer onto the realms of digital media and digital art than for instance in theories of poetry and painting.

In digital media all that is consistent are its inconsistencies. This is unlike more stable - yet pluriform - fields such as poetry or painting. Just consider the following question: "have digital media given rise to one particular form of art or Formalist approach?" The only positive answer I can imagine, is an answer that considers the overarching qualities of digital media as non-consistent, or in a constant state of flux. Moreover, as digital media can be used as a tool, a subject of study, or a vehicle for criticism, no uniform discipline has evolved. In fact, different disciplines of digital art perceive and position the digital in radically different ways, and this makes it possible for digital to take Modernist attitudes, while equally being fundamentally dissimilar to Formalism.

Smoothing over the discrete

Digital media are in a state of rapid development - which makes defining what digital art is very hard, if not impossible. However, digital art does have some basic characteristics: the computer lies at its roots, no matter how much its aesthetic changes. In the early years of computation, this was obvious. In fact, work made with a computer inevitably expressed its computer-ness: as it was the result of discrete computation, even when its creators did not wish for this. Typically, creators aspired to eliminate this computer aesthetic, which practically meant that any references to the computers' discrete qualities were actively smoothed out. A general desire was to come closer to reality, to strive for photorealism, or even, to become "real". Which may be a reason why discussing the binary opposition of digital vs analog became of importance in media theory.

The Japanese art critic gnick analyzes the boundary between the digital and analogue through a discussion of the 0,5 pixel.^[1] A 0,5 pixel should not exist. Strictly computationally speaking, a pixel that does not represent an integral multiple can only exist as a virtual or hypothetical object. However, certain devices, such as the retina display, have complicated the realm of pixels by introducing a distinction between logical pixels and physical pixels. Here, the logical pixel value refers to the amount of pixels at which the image is calculated. This value is device-independent and does not refer to its inherent physical dimensions. The physical pixel resolution on the other hand, refers to the number of pixels on the device's screen, which can function in a decimal pixel state. A functionality that is developed for human perception, rather than to remain true to the computational data or image information.

This form of 0,5 pixel exists solely for the deception of human vision; an illusionary value of the digital, only to be experienced as an analog perspective, an optical trick, a deception, or a *trompe l'oeil*. It is here, at the end of the computational (image processing) pipeline, that the true digital rendering is cast aside in favor of a representation optimized for human perception.

With the advent of high-definition technology, super resolution and AI, our technologies offer a

smoother version of our discretely computed data. The shocking moment in which the computer system gets wholly glitched has become a rare encounter.[2] At surface level, computational discreteness - which lies at the core of computational medium-specificity - is about to wholly disappear. It has not only become invisible and unattainable, but will soon not even trigger nostalgia, since a younger generation has never experienced the days of low resolution. With little discrete noise left to spark consideration, the discussion of other issues in digital media, such as assetization or decentralization, are taking over.

Morphology and medium specificity

The fading of the discrete breathes new meaning into a famous story by the Greek philosopher Plinius; he tells an anecdote about trompe l'oeil that illustrates the aim of painting at the time. In a contest to determine the greater artist, Zeuxis presents a painting that depicts grapes so realistically, that even birds are tricked to come and peck at them. In response, Parrhasius brings a piece covered by a curtain. But when Zeuxis asks him to take off the cover, the curtain itself is revealed to be the painting.

Could a painting that completely deceives the eyes of both animals and man actually ever be painted? And would such an illusion not eventually break down, as our two eyes would have to perceive its flatness? Is the perfect illusion just an impossible dream?

A specific wave of Modernist painters was convinced the perfect simulation was impossible and opposed this desire. They pursued paintings that didn't mimic anything, but instead adopted medium-specificity as their method. However, around the late 60s, this wave of painting was gradually reconsidered and the validity of its artistic theories questioned.

Reflecting on the history of medium-specificity in painting, professor of Art History at the School of Historical Studies at the Institute for Advanced Study in Princeton, Yve-Allan Bois, describes a relation to Formalism, setting apart two types. One type of Formalism "that envisions form as structural," encompasses the former wave of Modernist painters. Another, different type of Formalism "concerns itself essentially with morphology" - something Bois dubs a "restricted" Formalism.[3] This second type of formalism was practiced by a wave of artists in tandem with the use of optical illusions - a method from which more recent forms of realist techniques stem.

It is not clear to me, how, or even if, these creators that strive for realism - the old characters described by Plinius and the more recent formalist morphologists - can be related to the current state of the digital, where the smoothing of discreteness is used to get closer to a perfect simulation of the real. They are cultures apart and maybe just bear minor similarities to each other. But I will ask anyway: what would happen if the story of Zeuxis and Parrhasius was reproduced by a digital morphologist, or even, in the metaverse?

Their paintings would obviously be representations, i.e., computer graphics. To take things a step further, in highly developed digital media, this anecdote would maybe no longer be an impossible dream but a perfect simulated reality. The grapes of Zeuxis would carry shaders to reflect carefully calculated light, depending on our point of view, while the curtain of Parrhasius would sway in the simulated wind. The wonder of illusion would vanish in a state equivalent to reality, while the existence of Zeuxis and Parrhasius would become meaningless.

Some considerations of recent developments in digital art

It is striking to see the recent surge of NFT/blockchain artists who find joy in outputting their work

on pen plotters. This trend brings back memories of the digital pioneers of the late 60s: in the absence of sophisticated printers, this generation of artists used plotters to materialize their art in different, experimental ways. For example, Charles Csuri created his animations by plotting directly on the 16mm film from his computer. Csuri later created the animation *Hummingbird* (1967), which is considered the first attempt at morphing with a computer.

In the digital, morphing is a technique that aims to hide and deceive the discrete nature of the digital, by increasing frame rate, clock speed and resolution. Perfect morphing conceals its own existence. But to conduct morphing by force - to set the parameters of the morph to the extreme so to say - can result in unintentional or even unnatural representations. The animations by Csuri are in fact too poor to be called successful at morphing. In *Hummingbird*, the bird gets unnaturally deformed as the strokes that make up the hummingbird are scattered gradually. Fragmented, the animation presents no bird-like movements such as pecking at fruit. If anything, the *Hummingbird* just shows the limitations of computers and as a result, the medium-specific qualities of the time.

The adoption of plotter technology by recent digital (NFT/blockchain) artists may however illustrate less of an experimental mindset than its adoption by Csuri. It may rather mean a simplification of what it takes to materialize or translate digital objects into physical reality. I would speculate that these simplifications go hand in hand with how blockchain hashes guarantee a state of 'exclusivity' to digital assets - simulating a state of uniqueness that objects can have in the real world.

In his book about modern art history, the Japanese artist Hideki Nakazawa points out that new trends of art tend to start with expressionism. "When a new era begins, 'expressionism' submits sentiments as they are the most persuasive." If indeed expressionism indicates the emergence of a new art form,[4] the rise of contemporary forms of morphological expression could be seen as a sign of a new era for digital art. If in the age of the metaverse and blockchain, digital art does restart, what remains of its history? Is the work during the past 50 years in which artists and theorists have made sense of digital art destined to be neglected and forgotten?

The notion of immateriality (or virtual materiality) used to be one of the most important characteristics of digital media, but with the above described tendencies this understanding seems to disappear. The computational world is almost ready to fulfill the dream of 'materialization into reality.' A prospect that makes me wonder if the dichotomy of digital vs analog might soon be wholesale rejected?

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We have all had to consider the specificities of digital media in banal situations like printing an excel to paper. Personally, I enjoy the moments that medium-specificity manifests. Even as the realms of digital art continue to proliferate, its most fundamental condition of discreteness still offers its own aesthetics. To define the basis of digital media as being discrete by nature, like pixelation in vision and sampling in time, does not lead computer-based art into an impasse.

Equally, this is also not opposed to the current wave of digital artworks that adhere to a 'pleasure in expression' position and often lack a critical point of view. With these "analysis remains at the superficial level of form-as-shape,"[5] they are morphological. I do not deny their morphology, as this would come to restrict my understanding of Formalism in digital media. In fact, I ponder it thoroughly, to make up for the new wave of happy - yet uncritical - expressionists within a longer tradition of art history.