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INTERPRETATION

Research Paper: Thomas Barwick

"The more you rely on good tools, the more boring your sculpture will be." (Renoir,P,A. 1870's)

Yesterday, working on this paper, an angle poise lamp, with it's heavy base, toppled and fell onto my laptop destroying a third of the screen, a mass of scrambled pixels bleeding off in a crosshatch of horizontal and vertical lines. I took a screen-grab image of the whole screen, the irony hadn't escaped me as I sat writing about glitches and error, my laptop bleeding out before my eyes. Opening the image on another computer I couldn't see the distorted damaged screen, just the screen saver image. I was being dumb, it was the screen I had damaged not the image the image remained untouched, existing somewhere intangible, and it's that intangibility materiality that this paper will broadly explore.

The interface between image-maker and software is an established relationship, illustrators complete images or create them from scratch, with a sense of control and mastery. This paper will explore digital processes that release control from the image-maker, by reconnecting digital practice with traditional processes that adopt a similar approach to materials and tools by holding 'contrasting temporal and formal elements in dialogue' (Menkman 2009) they lose control and embrace error.

There has been real engagement with the materiality of software throughout the past two decades, separated into three camps, glitch art and glitch design and the found glitch [2]. The aspect of my practice I want to use, to examine error and the materiality of software is most closely related to digital work associated with the word 'Glitch' (Glen,J.) and with glitch design. It's a word that has become
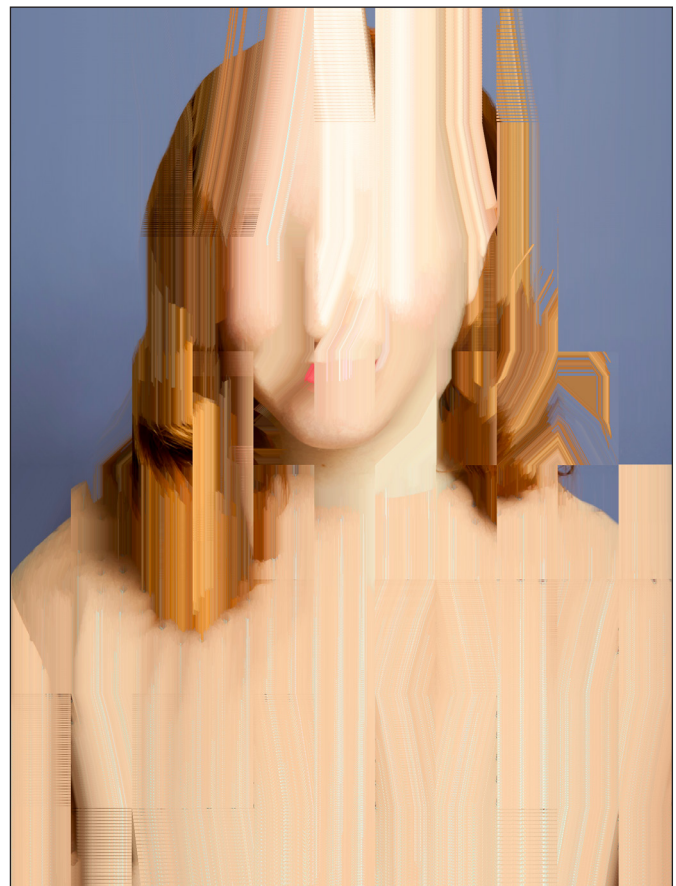
Renoir, Pierre-August, 1962 'Renoir, My Father' Renoir,J. Wm. Collins & Co

Glen, John. another term we adopted to describe some of our problems was glitch... a spike or change in voltage in an electrical circuit which takes place when the circuit suddenly has a new load put on it...A glitch is such a minute change in voltage that no fuse could protect against it." John Glen, as quoted in M. Scott Carpenter, We Seven. New York: Simon and Schuster, 1962

NOTE: Artists who use the glitch to make images fall into two distinct groups that create glitch art or glitch design. Further definition In Menkman's description of glitch art the intentionality of the maker is a key-perhaps definitional-aspect of the genre. Glitch design, by contrast, merely "fulfils an average, imperfect stereotype, a filler or commodity that echoes a 'medium is the 'message' standard."56 The glitch artist, by consequence, becomes such largely through authoring a critique-by tactically and thoughtfully mobilizing the materiality of the digital rather than simply admitting it in an act of appropriation or as an artistic readymade

associated with digital practice that either creates a software error to alter the image through altering the code, or locates unintentional errors with 'systems at the point of failure: communications, software, media technologies – systemic materials at the moment they collapse into granularity and difference' (Prior.2012). 'They do not work in (binary) opposition to what is inside the flows (the normal use of the computer) but practice on the border of these flows. Sometimes, they use the computers inherent maxims as a façade, to trick the audience into a flow of certain expectation that the artwork subsequently rapidly breaks out of. As a result the spectator is forced to acknowledge that the use of the computer is based on a genealogy of conventions, while in reality the computer is a machine to be bent or used in many different ways.' (Menkman. 2009) The errors, or glitches make us aware of the materiality of the software, pulling us out of any virtual sense of reality and making us aware of the images material yet artificial form.

Similarly, painters and sculptors in the 20th century began to believe in an inherent 'truth to materials' and made work that attempt-ed to reveal the plastic nature of oil paint on the canvas, or the hard granular qualities of carved stone, 'matter must continue it's natu-ral life when modified by the hand of the sculp-tor.' (Brancusi,C.1890) working in ways that reveal the nature of the material being used. Josef Albers and Anni Albers who were seminal thinkers at the Bauhaus in Berlin, explaining the impact this had on them as artists and teach-ers, they were convinced that the understand-ing of the material lay at the heart of an artists process, 'before everything is the material.' *(Albers,J 1930's* and a kind of objectifying happens when

(Szauder, D. 2013)

Prior, A, 2012. 'Glitching Paralogy', ''Glitch practices are interesting in this respect as they often concern themselves with systems at the point of failure: communications, software, media technologies –systemic materials at the moment they collapse into granularity and difference. Therefore glitch art might constitute a paralogous approach in drawing our attention to the materiality of its media, the conditions of technology and the constructed character of aesthetics. In hacking, bending, and repurposing they are changing the rules of the systems they exist within; simultaneously helping us better understand the conditions of technology, and suggesting new approaches and attitudes through with to approach such conditions.''
Menkman, R. 2009. paper title, 'Glitch Studies Manifesto', Amsterdam/Cologne.
Brancusi, Constantin b.1876 Romania. theartstory.org (online) Available at http://www.theartstory.org/artist-brancusi-constantin.html (accessed 02.06.14)
Szauder, D. 2013, 'Doras Flame', digital artwork, viewed 30th Nov 2013, http://pixelnoizz.wordpress.com/2013/11/12/failed-memories-the-4th-selection/

you have to concentrate on the demands of the materials and the technique' (Albers,A. 1950) Central to this critique is the sense that western art prior to this understanding was flawed. In this paper I have taken that primary fascination with a perceived error in understanding the true qualities of the material and used it to look for material qualities that I can identify in digital images that use, chance, and unpredictability, using the materials innate qualities as part of their process.

In traditional illustration practice, error or non-digital 'Glitching' is present in the relationship between three elements, the <u>artist</u>, the <u>tools</u> she employs and the <u>materials</u> she uses. The artist knows that they will achieve surprising, illuminating results when they work with inaccuracy, are open to chance, 'You have to think of it as a journey where a mistake is an opportunity to do something else. I'll turn it into something else, I may have been trying to draw something really specific, but it doesn't really matter.' (Steadman,R. 2013) , it's an opportunist practice and for it to work, the artist needs to become less subjective in order to allow those elements that Steadman explains, are not really elements you know you are looking for to appear, 'you've got to play trick, trick yourself, trip yourself up.' (Pollock, I) . Albers was misquoted as saying she had said that the artist must be totally free of the subjective, she corrected this, no she said, 'from the <u>too</u>-subjective, You can't avoid being subjective.' *(Albers,A. 1968)* acknowledging the sense that the artist is always 'there' to some extent in their process. This type of practice may feel esoteric and left of centre but as soon as we consider the way that tools and materials are used by contemporary illustrators, it becomes clear that at a motor skill level, many mainstream illustrators use tools and materials to force error and to create unpredictability as a part of their image making, they include, David Shrigley, Rob Ryan, David Downton, Rob Newman, Emma Dibben, Ralph Steadman, Ian Pollock. Here, in practices of this type, tools and materials are chosen for their ability to amplify the type of 'glitch' the artist is after intuitively at a dexterous level, materials like cut paper, hard board, water-colour, invite chance especially when combined with unreliable tools, scissors, leaky pens, scalpels, etc. It's a complex set of actions one following the other, a chain reaction of responses, chance plays a large part in the process, and the judgments made are like the judgments of the gambler at the roulette table, there is a strategy, but it's strategy based on the acceptance of chance and unpredictability. A process of rapid interpretation of events through marks on the page as they unfold through the image making process.

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Steadman, R., 2013. The Talks. Ralph Steadman: The Line Becomes More Aggressive,(online) available at http://the-talks.com/interviews/ralph-steadman/ . (Accessed Oct 24, 2013)
Pollock, Ian., 2014. 'A case of Happy Accidents' Documentary, Milner, L.

Agnes Martin makes a useful connection I want to draw your attention to, when she links the process of 'switching off' during image making to discipline, to a purer form, a more automatic interpretation, of the inspiration that she feels is visited upon her. 'Going without resistance or notions is called discipline. Going on when hope or desire have been left behind is discipline. Going on in an impersonal way without personal consideration is called <u>a discipline.</u> Not thinking, planning, scheming is a discipline.' *(Martin,A.1960's)* she's identifying the concentrated effort involved in not thinking while making art; as a process she sees it as a rigid activity, requiring this self discipline to accomplish passive modes of thought open to chance, error and loss of control. What the artist is fighting against are elements of her process that a computer does not have to repress 'and is not shaped, like an artist by our values, interests and purposes, as active agents.' *(Pasek,A.2013)* and this reveals useful information about the materiality of software.

Software has no values, interests or purposes it is not an active agent, it's an important distinction, identifying the software in a far more primitive light then I had first considered. It's the lack of these human drives that Agnes Martin identifies and says must be defeated through strict discipline, that if applied to a software suggest that it's inabilities its lack of real intelligence that exists beyond pure logic is a strength. Much contemporary thinking about computers and code has anointed them with incredible power. writes of howThey are 'plastic and metal corpses with voodoo powers, strangely animate and (self) commanding.'(Bogost, I.2012) the computer as autonomous miracle worker is a familiar trope. So it was surprising to find these primitive traits that Martin identifies, in their apposite form within the mathematics of a computers graphics software, and to think that if it did have voodoo powers they are powers of exemption, giving the software strength because it is as valueless, disinterested and purposeless as a lump of clay, a pot of ink or a bath of etching acid. Looking at software in this way we are starting to perceive the software more clearly as a material, by a process of elimination, establishing what it cant do to create a better focus on its capabilities as a material.

There are overt examples of artists attempting to replicate machines and 'switch off', throughout the 20th century, Cy Twombly making automatic drawings in the dark, or A. R. Penk mimicking the action of a dot matrix printer working in horizontal lines with dabs of black ink of differing sizes, maintaining a strict rhythm. Some Illustrators use techniques that are similarly overt, defining their work through error. Oliver Jeffers has created a series of paintings that are made traditionally, realis-

Martin, Agnes,.1960's, Letter
Pasek, A. (2013) The Pencil of Error:Glitch Aesthetics and the Electronic Afterlife of Liquid Intelligence Originally Prepared as a Seminar Paper for ARTH 673- Liquid Intelligence: Thinking the Fluid Image in the Long Eighteenth Century.

tic portraits painted in oil, set in gold frames, that he completes by dipping them, partly or fully into a bath of enamel paint to obscure the painting beneath. Jeffer's does not consider the work conceptual, ' I just want to make people think, I want to make them think about what's there and what's not there, what's lost and what can be found. '[10] (Jeffers,O. 2014). He is taking the error of obscuring half or even all of an image and using this in a similar way to the way that glitch images find or create errors in images to reveal a material truth that offers a different sense of reality to traditional digital depictions.

What we are seeing is the artist making a conscious cognitive decision to combine two contrasting materials, and techniques, to raise our awareness of both. It also gives us another insight into the material primitive qualities of software, if we replace the bath of enamel paint with a software fill, the fill is a process that affects all or selected parts of an image, ruthlessly, just like the enamel paint, it has no sense of right or wrong it just submits to the material process. Situating the artists authorship, when it is almost at breaking point, once the canvas has been lowered or the fill used the artist has lost control leaving the work open to automatic interpretation by the process and the materials. This positioning is an important measure of the type of traditional practices that will yield useful research that can be applied to the type of digital practice i am interested in, those that create that point at which control if lost and automatic interpretation takes over. Though its not a phenomenon that's just limited to the visual arts and the research can readily be extended into other fields in this sense.

I'll use two examples from the world of sport and music to extend our understanding of how error through loss of control occurs in a variety of creative pursuits in teh way they are artificially constructed.The majority of sports take advantage of the possibility of error and chance to increase the pleasure of playing and spectating. Football is a good example, the aim of the game has been created artificially and in that process risk and unpredictability has been built into the game to add excitement. 'Games hinge on a single moment of hazard of the ball hitting the post and going in or going out. We all know those things. You don't have a chance to control these hazardous moments.' *(Hodgeson, R. 2014).* Playing with your feet, the size of the pitch, the amount of activity on the field means inevitably there is a battle between control and acceptance of error, like the illustrator the footballer accepts this lack of control. When an illustrator works in this intuitive way decoding as they go, there is no script to follow; the story of an image like the story of a football match, is written in real time. They have to

Jeffers, Oliver.(2014) Interview, Ian Sanson, The Guardian,(online) http://www.theguardian.com/ Available at http://www.theguardian.com/culture/2014/apr/18/oliver-jeffers-u2-thing-chance (Accessed 04.06.14)
Hodgeson, Roy. (2014) England Manager,May 09.05.14. Metro.

be every player on the pitch jumping from move to move aware of chance and error as factors in the process.

Jazz music is framed in a different way, temporally, but it's a similar creative space to a sheet of drawing paper or a football pitch, a space where artificial rules have been put in place as well, where there is an agreement in place to deviate, repeat, meander and generally improvise, the audience taking pleasure in the unpredictability of the performance. The most accurate way to understand music is to read the score and internally process the music A, F#, C, C#, B etc but its immensely more enjoyable to hear the music, because you understand it in a different way as a feeling, as your brain automatically interprets it, accepting that it will be an imperfect replica of the musical score, an interpretation that brings a new truth to the material, musicians often refer to music as 'material'. The art of a DJ scratching, is perfect example of how glitching exposes a materials actual nature, a musical glitch misusing the record decks, forcing them to reinterpret the music on the disc, ripping open the material nature of the music exposing its nature

by dragging a needle through vinyl grooves. This uncovering process, relates to what i have been doing with error and glitch in my own practice, which i will explain in the next section.As an example of
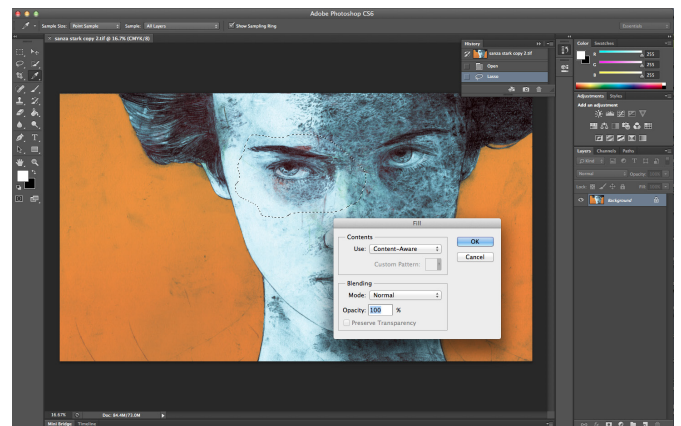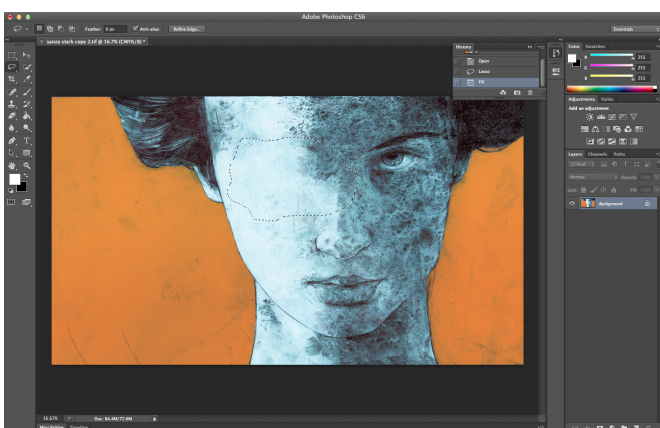
how i think i can drive my research by observing approaches to materials, in this case scratching and use them to reveal something new born out of the manipulation of whats allready there.Thinking about scratching fed the way i am working with error by simply identifying that sense of something new being hidden and that it might be revealed by changing rules, looking for different workflows that use the same tools but in less conventional ways that will reveal the materiality of the image, in the same way as the DJ interferes with convention.

The impetus for this paper came about through work done in my own practice, so I will shift the papers focus from theory to practice now and use that work to try and get closer still to an understanding of the materiality of software, embedding that into a far broader range of traditional materi-

als, as a material process, that mimics materials like molten bronze, acid, paint in its various oil and water based medias. I need to briefly describe the processes, materials and tools i have been using to make the drawings and then how I am treating the software as a material when i alter them digitally, to demonstrate how I have connected the two.

The drawings are done in graphite, a combination of graphite powder for the ground, used in an improvised way, and 9b pencils or charcoal pencils by Caran d'Ache to bring out the detail. It's the type of process I described earlier, one that many illustrators use today in a variety of contexts, it's open to chance and error, the focus is on action research. I work with reference improvising at a micro level, while maintaining a sense of the whole image and its likeness. Attempting to do the things that Agnes Martin speaks about, shutting things down, getting into a little dance between myself, and the materi-
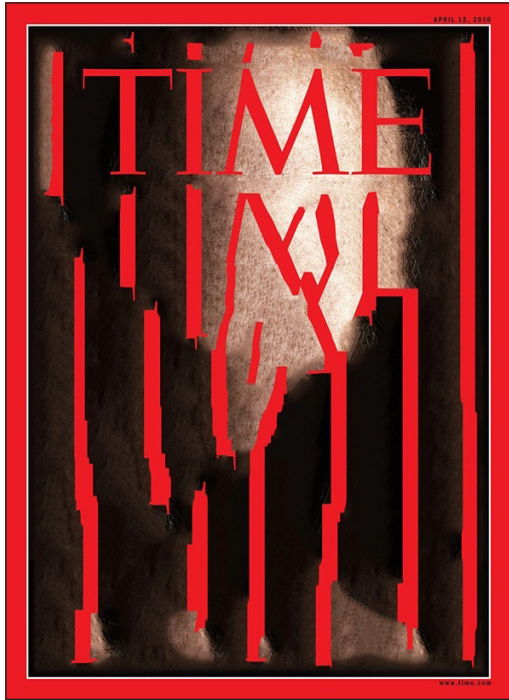

(Barwick, T. 2014)

Circles indicating areas that have been cloned and repositioned by the content aware fill
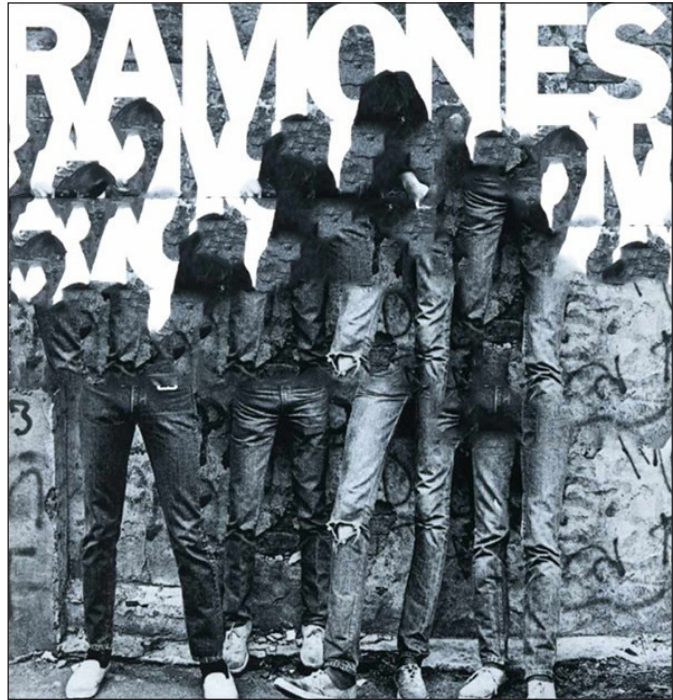
als that results in an image. I scan the drawing then select large areas to fill, using a 'smart' fill called content aware, in coding speak the algorithm that the fill executes is called a 'patch-matching' algo-rythm.' (Barnes, C. et al 2009).

Adobe created a new fill as part of Photoshop from CS4 onwards (Knoll et al 2008) they called the new feature CONTENT AWARE ® I've been altering drawings with it since 2010, its not designed to do this, that's were error is at play in an overarching way throughout the whole of the digital side of the process, content aware is designed to remove unwanted parts in photos, an old tin can that's spoil-

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Sagor,R. 2000, Guiding School Improvement with Action Research, Association for Supervision and Curriculum Development http://www.ascd.org/publications/books/100047/chapters/What-Is-Action-Research%C2%A2.aspx, "Action research is a disciplined process of inquiry conducted by and for those taking the action. The primary reason for engaging in action research is to assist the "actor" in improving and/or refining his or her actions."

ing a beach shot, or a strangers bald head poking out from behind father and daughter, it's a clever cosmetic patch up software made for fixing things. It only gets dumb when you give it dumb instructions and jump outside of the Adobe design teams conception of how it would be used. You wouldn't remove the sun from a sunset, you wouldn't select your pet dogs head and have it disappear, but if you do give the software this type of odd unexpected selection, it will give you back a similarly odd unpredictable result, a result that has similarities to an illustrators intuitive error and chance based approach in the real world. There has been work made using it with typography and photography that illustrates exactly what its doing very well, because we allready have a strong sense of what type should look like. Looking at the results I made that connection, then through action research observed other characteristics that separate software as a material from real world materials.
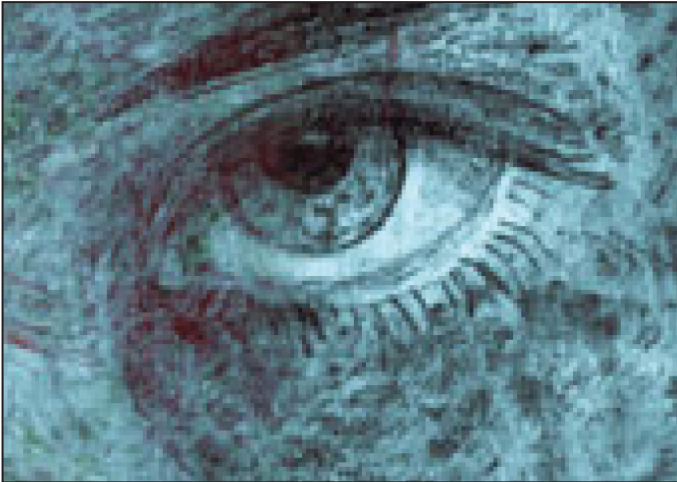
I found that if I did this with the drawings I had been doing, it amped up the effect of chance and error even more. Starting with an image that was already created through chance and error in that complex consciously unconscious way I have describe, then adding an extra layer of processing and alteration pushed the images into places that I would not of taken them working by hand. 'That are irresistible, notionless, impersonal, inconsiderate, thoughtless, clueless (Martin, Agnes,.1960's, Letter),processing machine, slightly brighter than a bath of acid, with its innate material strength, works

Both images anon, 'Untitled' Digital Artwork, viewed 30th May 2014, http://contentawaretypography.tumblr.com/

across the image unaware of what the image is, in that sense were looking at something primitive.

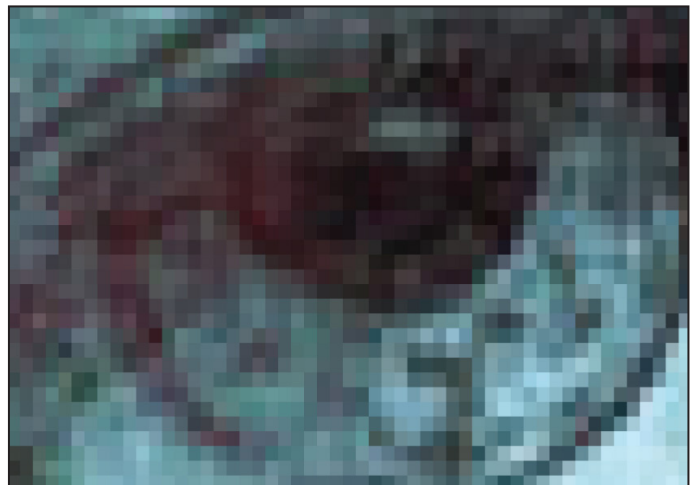Yet there are aspects of what the software is doing that are remarkable, qualities that cannot easily be replicated in traditional drawing. The ability to undo and redo the process while being also able to select different areas of the image for processing is different to the majority of real world processes,

which once committed to cannot be 'un-dipped', there is a safety net and the risk experienced when dashing down a line with a reed pen or whacking away with a six inch brush is removed. I'm not sure if this is a positive or a negative difference but rewinding and redoing the process is something that it lends itself well to and I use a lot. Undoing isn't anything new, but what's different is when you are undoing a whole series of thousands of calculations, undoing a process, rather than the undoing of a series of steps. At an almost microscopic level, undetectable to the eye, the software compares pixels from inside the selected area of the image and from outside and then swaps them around, there is no equiv-

alent for this in real world materials, it would be like being able to take tiny sections of oil paint and move them seamlessly to a new position, so here we have something as a material that feels new,
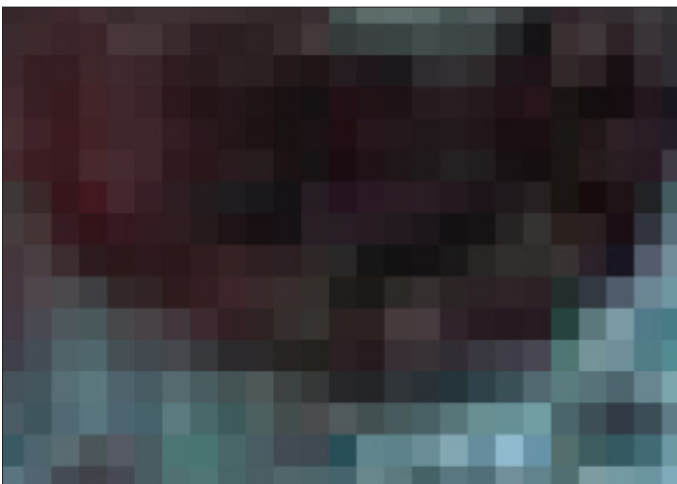
while not losing that sense of error or chance illustrators value. Its difficult to calculate all the new pathways that a drawing can take when converted into this material and processed but if you did calculate how many different areas of an image could be selected, their scale and the order in which you selected them, I am confident

in saying that it's a lot, as each wave of processing creates a new multiverse.

A computer cant ever be wrong (Owens, D. 2014), this felt true, and so long as we are talking about the confines of the software, within its set of rules, he is right, it cant be wrong. But this is a graphic problem that is always solvable, we are simply moving elements about and making sure they all add up again at the end. The 'error' we are looking for, anything in the image that feels wrong, in the same way that an illustrator looks for lucky mistakes when working traditionally, is an illusion, the error is our own mistaken perception of what the material we have made the image with is, its not a sheet of drawing paper it's now a grid of pixels. And so like in glitch imaging, we see the materi- al nature of the digital image staring us in the face though our perception of an error. There is a lot of deception involved in the process, and the trick is that we told the computer it was OK when it wasn't, we told it we wanted to scramble a drawing, and that that was OK, but it wasn't really OK at all, it was going to mess that image right up, really change it. But that was OK, because the computer didn't know what a drawing was. All it's working with are pixelated blocks of colour, and 'patch-matching' them together in a new pattern. Is that authorship?

It is, but to get an idea of what kind of author, we have to try and look at this from the software's perspective. To do this lets think about what would happen from the perspectives of England Manage Roy Hodgson and Jazz Saxophonist John Coltrane if they were given the same skills as the software. Hodgson could select any part of the pitch and relocate anything on that pitch anywhere he wanted instantaneously and repeatedly, Coltrane could take the whole of his performance select a part and re-order it taking notes from any part of the session and putting them elsewhere, while also sampling notes from other sections outside of his selection reordering them with a set of rules that will make them tonally harmonious, in the same way that content aware is coded to look for tones that won't leave a line and will blend in. This feels like a super smart England Manager, and the computer soft- ware feels super powered. But a computer doesn't know how to interpret a football match, it doesn't know what Jazz is, it certainly has no clue what a decent drawing looks like. Blindfold Roy Hodgson, get him blind drunk and spin him around three times and your getting closer to the soft wares level of actual understanding, but I am afraid it's more primitive than that. Wasted out of his mind Hodgson still

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understands what a football is, what grass is, if it's raining. The software can detect these things but it can't understand them. A digital camera can detect faces, but it cant really it's an illusion, it's doesn't know what a face is, every shred of face-ness has had to be re-interpreted as mathematical code that equivocates to a face-finding process based on measuring rectangular shapes (Viola,P. Jones,M. 2001), but there is still no real understanding of what a face is.

And yet for all this stated simplicity the software is never fully understood by me, I have little or no understanding of what is tangibly happening when I use content aware, the math, the algorithm is far beyond me. With traditional materials, I don't sweat it, that I don't know what the chemistry of cobalt blue is, so i am choosing to view software in the same way, it's just another element that I have some but not total understanding of. It's an interesting aspect of the relationship to the materiality of software, this incomprehension of each other, each author unaware of the others methods.

This research began with the idea that automatic interpretation was going to be something confined to digital image making, but when I looked at it's material nature I was able to extend that idea and situate digital within a bigger framework of material use through history by artists.By focusing on processes that effectively 'lock out' the author for a period and have a chemical metamorphic component. Print-making and bronze casting make good examples, in etching a drawing is made on a copper plate then burnt into with acid and in bronze casting molten metal is poured into a cast, both processes that lock the author out of the picture temporarily. It's similar to the way content aware works in a mass across the surface of the image without the artist intervening as mathematical rather then chemical elemental rules are applied. Digital work created in this way can be incorporated into a far larger picture of arts practice, where the nature of the material and the way it is asked to process an image remotely is a component part of the authorship of the piece. The scope of this paper does not allow for close analysis of how artists work in this way at a practice level, and so further research will take an ethnographic approach, to get closer to understanding individual artists relationships with their material processes and then apply that back to digital image making that uses automatic interpretation. To continue the historical aspect of the research the aim will be to connect the modern artists approach to materials with an anthropological thread of enquiry that explores the approaches and beliefs at an aboriginal level, and again apply these approaches to digital materials.

Viola,P. Jones, M. (2001) Rapid Object Detection using a Boosted Cascade of Simple Features (Lecture Conference on Computer Vision and Pattern Recognition) Cambridge, MA. 2001.