Live visuals have become a pervasive component of our contemporary lives; either as visible interfaces that re-connect citizens and buildings overlaying new contextual meaning or as invisible ubiquitous narratives that are discovered through interactive actions and mediating screens. The contemporary re-design of the environment we live in is in terms of visuals and visualizations, software interfaces and new modes of engagement and consumption. This LEA volume presents a series of seminal papers in the field, offering the reader a new perspective on the future role of Live Visuals.
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When Moving Images Become Alive!

“Look! It’s moving. It’s alive. It’s alive... It’s alive, it’s moving, it’s alive, it’s alive, it’s alive, IT’S ALIVE!”

Frankenstein (1931)

Those who still see – and there are many in this camp – visuals as simple ‘decorations’ are living in a late 19th century understanding of media, with no realization that an immense cultural shift has happened in the late 20th century when big data, sensors, algorithms and visuals merged in order to create 21st century constantly mediated social-visual culture.

Although the visuals are not actually alive, one cannot fail to grasp the fascination or evolution that visuals and visual data have embarked upon. It is no longer possible to see the relationship of the visual as limited to the space of the traditional screens in the film theater or at home in the living room with the TV. The mobility of contemporary visuals and contemporary screens has pushed boundaries – so much so that ‘embeddedness’ of visuals onto and into things is a fact of our daily practice. The viewers have acquired expectations that it is possible, or that it should be possible, to recall the image of an object and to be able to have that same object appear at home at will. The process of downloading should not be limited to ‘immaterial’ digital data, but should be transferred to 3D physical objects.

Images are projected onto buildings – not as the traditional trompe l’oeil placed to disguise and trick the eye – but as an architectural element of the building itself; so much so that there are arguments, including mine, that we should substitute walls with projected information data, which should also have and be perceived as having material properties (see in this volume “Architectural Projections” by Lukas Treyer, Stefan Müller Arisona & Gerhard Schmitt).

Images appear over the architecture of the buildings as another structural layer, one made of information data that relays more to the viewer either directly or through screens able to read augmented reality information. But live visuals relay more than images, they are also linked to sound and the analysis of this linkage provides us with the opportunity “to think about the different ways in which linkages between vision and audition can be established, and how audio-visual objects can be composed from the specific attributes of auditory and visual perception” (see “Back to the Cross-modal Object” by Atau Tanaka).

iPads and iPhones – followed by a generation of smarter and smarter devices – have brought a radical change in the way reality is experienced, captured, uploaded and shared. These processes allow reality to be experienced with multiple added layers, allowing viewers to re-capture, re-upload and re-share, creating yet further layers over the previous layers that were already placed upon the ‘original’. This layering process, this thickening of meanings, adding of interpretations, references and even errors, may be considered as the physical process that leads to the manifestation of the aura as a metaphysical concept. The materiality of the virtual, layered upon the ‘real’, becomes an indication of the compositing of the aura, in Walter Benjamin’s terms, as a metaphysical experience of the object/image but nevertheless an experience that digital and live visuals are rendering increasingly visible.

“Everything I said on the subject [the nature of aura] was directed polemically against the aestheticians, whose inexperience and ignorance I find highly repugnant. . . . First, genuine aura appears in all things, not just in certain kinds of things, as people imagine.”

The importance of digital media is undeniably evident. Within this media context of multiple screens and surfaces the digitized image, in a culture profoundly visual, has extended its dominion through ‘disruptive forms’ of sharing and ‘illegal’ consumption. The reproducibility of the image (or the live visuals) – pushed to its very limit – has an anarchistic and revolutionary element when considered from the neocapitalistic perspective inmuled in corporative and hierarchical forms of the construction of values. On the contrary, the reproducibility of the image when analyzed from a Marxist point of view possesses a community and social component for egalitarian participation within the richness of contemporary and historical cultural forms.

The digital live visuals – with their continuous potential of integration within the blurring boundaries of public and private environments – will continue to be the conflicting territory of divergent interests and cultural assumptions that will shape the future of societal engagements. Reproducibility will increasingly become the territory of control generating conflicts between original and copy, and between the layering of copy and copies, in the attempt to contain ideal participatory models of democracy. The elitist interpretation of the aura will continue to be juxtaposed with models of Marxist participation and appropriation.

Live visuals projected on public buildings and private areas do not escape this conflict, but present interpretations and forms of engagements that are reflections of social ideals. The conflict is, therefore, not solely in the elitist or participatory forms of consumption but also in the ideologies that surround the cultural behaviors of visual consumption.

Object in themselves, not just buildings, can and may soon carry live visuals. There is the expectation that one no longer has to read a label – but the object can and should project the label and its textured images to the viewer. People increasingly expect the object to engage with their needs by providing the necessary information that would convince them to look into it, play with it, engage with it, talk to it, like it and ultimately buy it.

Ultimately there will be no need to engage in this process but the environment will have objects that, by reading previous experiences of likes and dislikes, present a personalized visual texture of reality.

Live visuals will provide an environment within which purchasing does not mean to solely acquire an object but rather to ‘buy’ into an idea, a history, an ideology or a socio-political lifestyle. It is a process of increased visualization of large data (Big Data) that defines and re-defines one’s experience of the real based on previously expressed likes and dislikes.

In this context of multiple object and environmental experiences it is also possible to forge multiple individualized experiences of the real; as much as there are multiple personalized experiences of the internet and social media through multiple avatar identities (see ‘Avatar Actors’ by Elif Ayter). The ‘real’ will become a visual timeline of what the algorithm has decided should be offered based on individualized settings of likes and dislikes. This approach raises an infinite set of possibilities but of problems as well.
The lack of ‘real’ in Jean Baudrillard’s understanding of existence that constantly tries to catch up and play the role of perception. The end of post-modernity and relativism may lead to the virtuality of truism: the representation of visuals is accelerating the creation of a world of instantaneous connectivity, desires and aspirations. A visuality of hyper-mediated images that, as pollution, pervades and conditions our vision without giving the option of switching off increasingly ‘alive’ live visuals.

If we still hold to this dualistic and dichotomist approach of real versus virtual (although the virtual has been real for some time and has become one of the multiple facets of the ‘real’ experience), then the real is increasingly slowing down while the virtual representation of visuals is accelerating the creation of a world of instantaneous connectivity, desires and aspirations. A visuality of hyper-mediated images that, as pollution, pervades and conditions our vision without giving the option of switching off increasingly ‘alive’ live visuals. A visuality of hyper-mediated images that, as pollution, pervades and conditions our vision without giving the option of switching off increasingly ‘alive’ live visuals.

The lack of ‘real’ in Jean Baudrillard’s understanding is speeding up the disappearance of the ‘real’ self in favor of multiple personal existential narratives that are embedded in a series of multiple possible worlds. It is not just the map that is disappearing in the precession of simulacra – but the body as well – as the body is conceived in terms of visual representation: as a map. These multiple worlds of representations contribute to create reality as the ‘fantasy’ we really wish to experience, reshaping in turn the ‘real’ identity that continuously attempts to live up to its ‘virtual and fantastic’ expectations. Stephen Gibson presents the reader with a description of one of these worlds with live audio-visual simulations that create a synesthetic experience (see “Simulating Synesthesia in Spatially-Based Real-time Audio-Visual Performance” by Stephen Gibson).

If this fantasy of the images of society is considered an illusion – or the reality of the simulacrum, which is a textual oxymoron at prima facie – it will be determined through the experience of the live visuals becoming alive.

Nevertheless, stating that people have illusory perceptions of themselves in relation to a ‘real’ self and to the ‘real’ perception of them that others have only reinforces the idea that Live Visuals will allow people to manifest their multiple perceptions, as simulated and/or real will no long matter. These multiple perceptions will create multiple ever-changing personae that will be further layered through the engagements with the multiple visual environments and the people/avatars that populate those environments, both real and virtual.

In the end, these fantasies of identities and of worlds, manifested through illusory identities and worlds within virtual contexts, are part of the reality with which people engage. Although fantastic and illusory, these worlds are a reflection of a partial reality of the identity of the creators and users. It is impossible for these worlds and identities to exist outside of the ‘real’. This concept of real is made of negotiated and negotiable frameworks of engagement that are in a constant process of evolution and change.

The end of post-modernity and relativism may lead to the virtuality of truism: the representation of visuals is accelerating the creation of a world of instantaneous connectivity, desires and aspirations. A visuality of hyper-mediated images that, as pollution, pervades and conditions our vision without giving the option of switching off increasingly ‘alive’ live visuals. A visuality of hyper-mediated images that, as pollution, pervades and conditions our vision without giving the option of switching off increasingly ‘alive’ live visuals.

The potential problems of this state of the live visuals within a real/virtual conflict will be discovered as time moves on. In the end this is a giant behavioral experiment, where media and their influences are not analyzed for their social impact ex ante facto, this is something that happens ex post facto.

Nevertheless, in this ex post facto society there are some scholars that try to understand and eviscerate the objects seen can be bought and automatically printed at home or in the office. Matt Ratto and Robert Ree, “Materializing Information: 3D Printing and Social Change,” First Monday 17, no. 7 (July 2, 2012), http://firstmonday.org/ojs/index.php/fm/article/view/3968/3273 (accessed October 20, 2013).


It is this control of the environment around us and us within that environment that will increasingly define the role that live visuals will play in negotiating real and virtual experiences. The conflict will arise from the blurred lines of the definition of self and other; whether the ‘other’ will be another individual or a corporation.

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Interactive Animation Techniques in the Generation and Documentation of Systems Art

by

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BACKGROUND

The author originally worked with remotely sensed satellite image data, and the development of Geographical Information Systems (GIS), for environmental and development projects. He worked on large spatial database systems that compared social and environmental data against satellite images to find spatial and temporal patterns in natural and man-made activity. Subject specialists, such as soil scientists and social scientists each had their own methods for sampling, categorizing and presenting the data. The author was drawn to the way complex physical and social systems were integrated, modeled and visualized spatially and temporally. In particular he was interested in sampling, boundary and category issues found when cross-referencing the specialist data and the satellite images. For example how the, colour value of a pixel on a large satellite image could be attributed to changing phenomena on the ground, and how this can be represented with a clear delineated boundary. This would often involve checking the accuracy of the data by going out in the field and walking with a GPS and a digital camera, and seeing how reality at that point in time corresponded with the data. The author made such fields walks in South and Central America, the Middle East and Africa.

As part of the research process spatial and temporal patterns and phenomena in the satellite images were discovered that could not be explained by the model or systems derived from specialist fields. Visual patterns were discovered in the data through intuitive visual manipulation (such as animating the data over time) that could not be readily explained by subject specialists. The author questioned how such patterns could be perceived in the data, when the system (the scientific methods employed in the collection and organization of the data) could not support such findings. Thus the system that encompassed all the different data sets and methods required constant revision to accommodate the new results.

A hypothesis presented itself, which ultimately led into the field of systems art. It was that all the specialist models employed by the different professional fields were necessary abstractions of reality, specific to those fields, and whilst these models could be understood as offering a supportive framework to interrogate the data to a certain depth, ultimately the last step required an intuitive leap of the imagination. It was this borderline between a well-defined system and the transgression of the system that fascinated the author, and continues to fascinate him as an artist. How systems are revealed, revised, transgressed and fail. How phenomena is experienced, documented, abstracted and presented are ongoing concerns for the author.

ABSTRACT

This paper summarizes the systematic processes employed by the artist and illustrates how interacting with digital data using live animation techniques is used to generate ideas and document visual decision-making in the creation of a piece of work. As an artist with a systems background, the author is interested in the borderland between systematic approaches to production versus intuitive experimentation through action art. In contextual terms he has applied this approach to environment and place, producing art from walks. He has named these System Walks. Collecting experience and information through walking in the System Walks is a personal attempt to bring the technological approach of spatial analysis in the forms of GIS and GPS along side the surrealist, aesthetic and impressionistic approach of visual art. This duality of objective and subjective is accommodated in the ideas of Psychogeography. The paper will give a brief overview of Systems Art, Psychogeography and Walking as art. It will then describe the art process of the author and the performative role interactive animation plays in the art production.
The systems artists made their methods explicit and the rules were central to the idea of the work, whilst the Abstract Expressionist did not explicitly acknowledge the role rules, and processes played in their work.
The Arcades Projects, as socio-economic systems, are a way of finding the exceptions of place and topology. Psychogeography was the aim of combining subjective and objective knowledge and Debord attempted to resolve this inherent paradox in his 1958 book, *Theory of the Dérive.*

On another level the author’s work references the performative aspect of conceptual land artists, such as Richard Long and Hamish Fulton. Long has contextualized his walking through a broad cultural history from Pilgrims to the wandering Japanese poets, the English Romantics, and contemporary long-distance walkers. The underlying thread of each of these movements is that walking is a way of engaging with the world. Walking provides the means of exposing oneself to new, changing perceptions and experiences and of acquiring an expanded awareness of surroundings. Through such experiences, and through a deeper understanding of the places we occupy, we acquire a better understanding of our own position in the world. Likewise the author’s works, although based on systems, (which can include geo-information, maps or socio-economic systems,) are a way of finding the point where he can transcend the system in both walking and mapping terms and express a deeper essence of the place, as articulated in Heidegger’s concept of *Dasein.*

Both Long and Fulton are concerned with the relationship between man and nature whereas the author is interested in how this relationship is mediated and represented through information in art and science. The work of Long and Fulton can be described in both performance art terms, as the act of the walk is central to the work, but also in conceptual art terms, as at the route of each walk is an idea. This idea may relatively simple, such as ‘to walk in a straight line for 100 meters,’ but without this idea the art does not exist. Their work though cannot be easily categorized solely as conceptual art, as the idea does not take primacy over the walk. The idea must be realized through the walk. “The relationship between the idea for a walk, the walk itself, and the physical evidence of the walk, is a fundamental issue in Long’s art. While it is possible to identify these components singly, it is the interaction of these components that provides the fabric of his work.”

This essentially distributed system of production and reception is instructive in understanding the walks of the author. As the work of art is distributed across, the idea, the walk, the collection of data, the manipulation of data, the production of the visual artifacts, and the reception of the constituent parts by the audience. Thus despite the author’s experience of data collection on a macro-scale through GIS and Satellite image processing techniques he has chosen walks as it is a direct way of experiencing a place qualitatively, and a useful way of capturing data quantitatively, due to the relatively slow movement through space. Returning to the idea of systems art, a walk can be defined as an art system that produces outputs, which in turn is representative of both the environment and sense of place. The walks made are a solitary performance that is recorded. The art work made from the walks are a culmination of organizing and interrogating the recorded information in a systematic way, and then transcending this order to make controlled but spontaneous decisions during the live interaction processes.

**METHODOLOGY**

The System walks are conceptual art in the sense that they are based on an idea. These ideas may have a formal or conceptual basis. For example certain walks are repeated in different environmental conditions to capture the changes in light and flora. Whilst other walks are part of a broader conceptual idea in relation to methodology or society. The System Walks though are more than the conceptual idea, as the walk and production of the artwork from the walk are integral to the work; to form a complex distributed system. A System Walk, for example, may consist of six definable parts, such as the idea, the walk, the data derived from the walk, the live interaction with the data to produce art works, such as prints and films, and a film documenting the interaction. In addition the surrounding reception, such as the compulsion of the viewer to re-imagine the walk, could be included as a constituent part of the system. Thus these works can be considered as distributed systems, as they consist of discrete but interdependent parts of a whole. The final art ‘works’ of films, prints, and paintings should be considered as system outputs of a system that was created to structure and evaluate the experience of the walk and idea. The stages of a typical system walk will now be summarised, highlighting the key part gestural computer input devices such as drawing tablets and MIDI controllers play in the production of the work in real-time.

**THE WALK AND DATA CAPTURE**

On return to studio the sequences of still frames are turned into stop-motion films and are used as the basis to produce all subsequent art works. It is at this stage that the intent of the artist comes into play as he extracts colour and meaning from the imagery captured during the walk. The artist has designed a computer-based system, developed using the TouchDesigner software, to allow the colours and positional information to be extracted from the film interactively. The film runs through each frame slowly, at a frame

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ARTICLE

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rate of 1 frame per second. Therefore each second of this process is equivalent to 10 seconds of the walk, based on a 10 second time-lapse sequence. Therefore it would take one hour of interaction to run through a film of a ten-hour walk. This process is engineered to force a more intuitive and direct interaction to the material. The frame rate can be adjusted interactively in real-time, to allow the artist to have the optimal dynamic relationship with the material. If the material runs too slowly it may give too much time to ponder each frame, for example in compositional terms. If it runs too quickly it will give insufficient time to make the correct aesthetic selections of colour.

The selection of colours is made using a drawing tablet and pen. A continuous line is drawn across the film using a digital drawing tablet for the duration of the film. By directing the pen across the screen the RGB values are sampled, one for every frame. This process can be repeated indefinitely until the work feels complete. These can be turned into an animation that shows the progression of the walk through the addition of the abstracted blocks of colour, or can be printed as fixed abstracted maps or landscapes.

In the first set of example work the sampled colours are laid out as a grid of colours, starting in the upper left hand corner of the screen working down the screen from left to right. Figure 1 shows 3 versions of the work based on same walk from the Scottish Borders town of Selkirk to a group of large cairns, dating from the sixteenth century called the Three Brethren. An interesting aspect of the work is that each iteration of the work derives a different range and composition of colours. Thus giving a direct record of how the artist interacted with the material at that point in time.

In the second Figure the same process of real-time sampling takes place, but this time the colours are saved as spots of colour. The film is shown on two screens. From one screen the colours are sampled using the tablet, and on the second the spots are superimposed onto the film. As the film progresses the image is obscured by the spots. The size of the spots is controlled in real-time with a midi controller that allows the spots to be scaled in real-time. This adds a compositional and an additional aesthetic element to the work. Again the process of interacting with the work allows the artist to become familiar with the material and process new colour selections and compositions with each iteration. Figure 2 shows several photographs produced from a walk in Berlin that has

Figure 1. System Walk The Three Brethren, (3 iterations), Paul Goodfellow, 2012, Epson K3 ink on paper and on paper, Aquarelle Rag. Each work 310 gm, 420mm × 594mm. © Paul Goodfellow, 2012. Used with permission.

Figure 2. System Walk Berlin, (4 photographs from series), Paul Goodfellow, 2010-ongoing. Epson K3 ink and on paper, Aquarelle Rag. Each work 310 gm, each photograph 285mm × 290mm. © Paul Goodfellow, 2010. Used with permission.
been repeated a number of times since 2010. The walk has been repeated in various weather conditions and at different times of the year.

In the third Figure the same process of real-time colour sampling takes place, but this time instead of selecting solely on colour, elements of the photographs are also selected. These sampled elements of interest are extracted as spots. On one screen the spots of the photograph are sampled using the tablet, and on the second the spots are overlaid on a white canvas, as you would in a collage. As the film progresses the white canvas is filled with overlaid photographic elements. The size of the elements is controlled with a MIDI controller that allows them to be scaled in real-time. Figure 3 shows stills from a walk made in the Balat district of Istanbul.

These pieces work like collage, layering the generated shapes, in an attempt to avoid the art historical baggage that comes with gestural painting. It is inevitable that gesture plays a part in the work, but this happens at the digital stage and is centered on the hand movements with the controller and tablet. In Bataille’s History of Modernism he described collage as one of the key acts of creative decomposition: the killing of painting. Joan Miro, another artist who employed collage techniques mischievously declared: “I want to murder painting.” This approach to painting with colour is not an attempt to kill painting; rather an attempt to pin down what is systematic in construction process.

In the final, more visually complex example, colours are again extracted from the images, but this time the shape that represents the sample is controlled by other data, such as altitude, temperature, or speed. The shape is based on the idea of the Superellipse, proposed by Johan Gielis, also known as the Superformula, and is controlled by these other factors, such as altitude. Again one screen shows the film to be sampled, whilst the second shows the evolving composition. This work can be repeated indefinitely to produce evolutionary films and complete compositions. Figure 4 shows work produced from a walk in the rough terrain of Applecross in Northwest Scotland to the old settlement of Airigh-Drisag.

Uniting all these works are two underlying principles. Firstly they are all produced from clearly defined systems that deal with sampling spatially collected colour values. Each system is designed to allow the artist to make spontaneous, intuitive decisions about colour selection and these selections are visually captured. Secondly all of the work has two or more distinct temporal dimensions. The initial data is collected in a specific space-time, and then the data is manipulated in a second space-time. Each work produced captures both the original material and how that was mediated through the second space-time of the production. The final set of works in Figure 4, System Walk: Airigh-Drisag, are to some degree different in that the system is more complex and can be seen as either accommodating hand drawn elements, or that the system has been transgressed by the hand drawn elements and consequently the system is need of revision.

CONCLUSIONS

The aim of the author’s work on one level is to capture the essence of a walk, a landscape and sense of place in abstract art work produced using systematic techniques. On another level he is interested in the way the spontaneous decision-making is taking place within this strict framework, and how these intuitive decisions can be documented through animation.

This paper has described how interactive animation techniques are used to manipulate the data to produce new work, but also captures in real-time these intuitive decisions being made in the works creation. There is no such thing as a perfect model in the real world that perfectly reflects the phenomena it seeks to represent, as there will always be variables that you cannot account for. A system therefore can only be an approximate model of the real world. These abstracted works can therefore only be an approximate model of the walk, landscape and sense of place, but through
repeated interaction, can still be an accurate model of how the artist reflected upon the walk and the data the walk produced.

In Walter Benjamin’s essay “The Work of Art in the Epoch of its Technical Reproducibility,” he notes that whilst technology has long been a part of human society modern technology transforms the spatio-temporal coordinates of experience. He uses the Lithograph to illustrate this point noting that whilst it is capable of producing many copies of a work each will be unique to the time and place it was produced due to the inherent variability in the process. Like wise the systems employed here to produce these works in real-time captures a unique work, that whilst based on the original source material is specific to the response to the material and the gestures employed at the time of interaction. Technology is therefore not merely reproducing the images produced during the original experience of the walk as it is mediated by the second space-time experience of the interaction to produce something original each time the interaction takes place.

The work discussed in this paper is both the product of the artist applying, (and enjoying the benefits of applying), systems methodology within an art context. Whilst at the same time inherent within this work is an explicit acknowledgement of the limits of applying a rigid methodology that cannot accommodate change. The work illustrates the difficulty of the artist to remain with the rules of the system, and therefore any given system needs to be revisable. That is, due to spontaneous, aesthetic, or sub conscious decision-making the artist, however disciplined will inevitably transgress the system. The work produced during this spontaneous transgression may of course be the most interesting, and the methods employed by the artist are designed to capture and record these transgressions, and evolve the system further to incorporate these changes. In this way more of the instinctive decision-making of the artist is made explicit, understood and incorporated back into the system.

In allegorical terms the work reflects back to the original systems science research of the author, and attempts to highlight that it is inevitable for a system, model or theory to evolve due to ideas that cannot be fully accommodated in the present system. There have been examples in recent scientific research, such as the handling of climate change data, where the transgression of a model, methodology or system is not explicitly acknowledged due to social, institutional or even philosophical reasons. Likewise the adherence to flawed economic models that are not accommodating, or modeling accurately the spontaneous intuitive decisions being made by economic traders has contributed to the widespread financial crisis of most western economies since 2008. The author contends that it is the responsibility of the systems artist to embrace systems thinking in order to highlight the limitations of this approach.

REFERENCES AND NOTES

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The Mucc Pavilion

Archivio Storico
Teatro
Musica
Danza
Cinema
Architettura
Arte

la Biennale di Venezia