

Analytical Essay

Contemporary Projection Mapping

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Contemporary projection mapping is seen by many today as an entirely new phenomenon. It is a product of new media art that is shaped and changed as technology advances. However, the idea of projection mapping has been around for awhile and the development of this medium needs to be read in a broader historical context. In this essay is an investigation into what cultural factors might have contributed to the rise of such a distinct projection medium. It is also an examination into some of the concepts relevant to the artform such as interactivity, remediation, immersive environments, and site specificity with examples from leading practitioners in the field.

History / context of projection art as a medium

Contemporary projection mapping can be seen as a subset of the expansive form that new media art can take. Analysing this artform more deeply we can see that its emergence is not entirely new but can be traced from a development and hybridisation of the moving image in cinema, video and installation based practices.

Video became a popular tools for independant artists to express their ideas since the 1960's and 1970's. Its popularity came as a response to the introduction of the Portapak videotape recorder into the consumer market. This gave artists access to working in the moving image format for relatively little cost. Previously this medium had been highly expensive and kept in the realm of film production houses and corporate broadcasting environments. The moving image was now being seen outside of the space of its traditional context in the cinema was entering into the domestic setting of people's homes by television. Despite or because of this social shift artists recognised television as an instrument, removing it from its customary position in the living room and transforming its capacities and uses¹

With the creation of video art also lead to the rise to questions on how to display the work in innovative and interesting ways. Television monitors became a sculptural elements in media based installations. The use of multiple monitors to display the same image or parts of an image to construct a larger whole was also a device used. Nam June Paik was an artist who created many large scale video art installations to comment on a media-saturated society.

¹ John G. Hanhardt 'From Screen to Gallery: Cinema, Video and Installation Art Practices' American Art, Vol. 22, No. 2 (2008): 2-8.

Video tapes and recorders have now been superseded by more advanced technology. Like many technologically driven art forms the medium underwent rapid transformation in the conversion from analog to digital. We now have new media based installations rather than what was previously described as video art installations. The Portapak video recorder of the 1970's can be seen to have as much impact at the time comparable to the rise of portable consumer projectors have had in recent times.

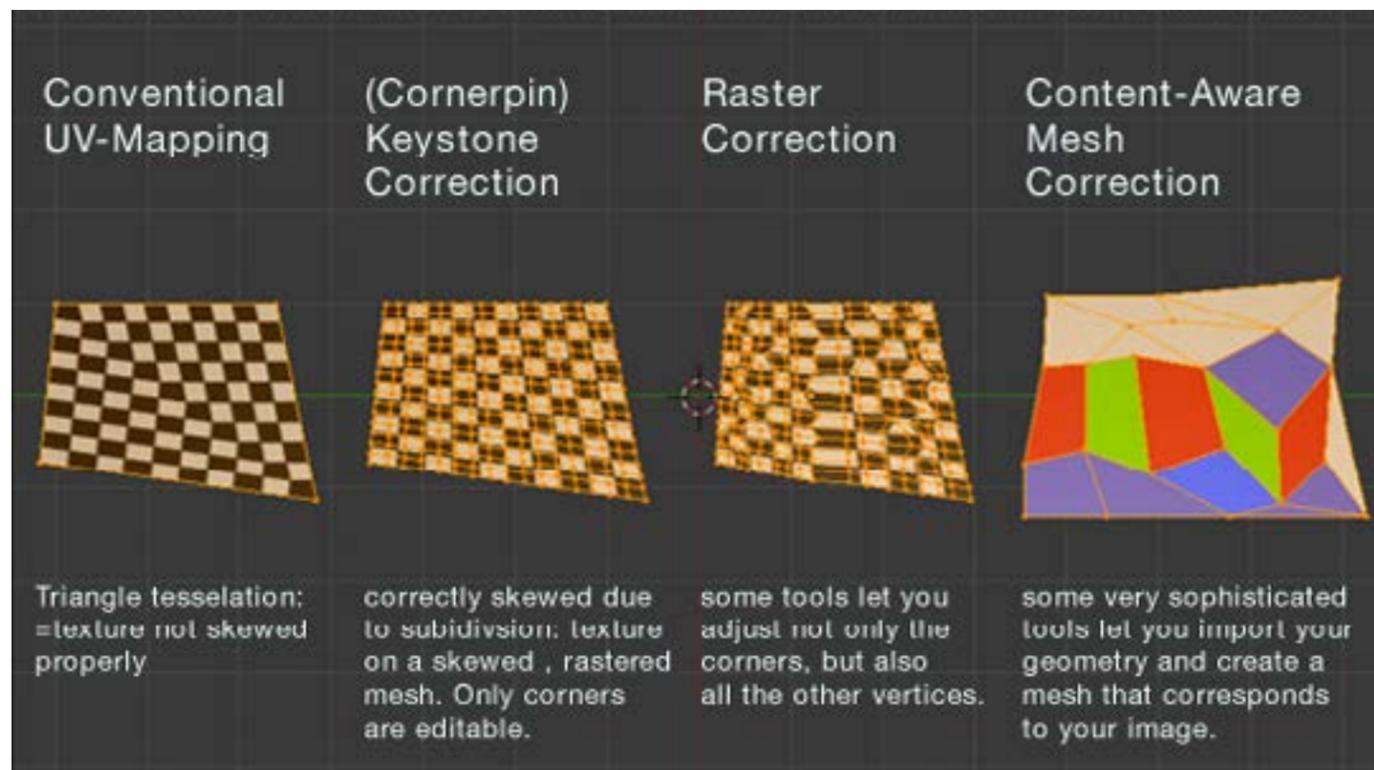
The questions remains - does new inventions of technology lead the way forward with new types art being developed? Or is it that adaptations of technology by artists to use them for other purposes then they were built that ultimately lead rise to innovations. As David Joselit theorized on the subject, media and medium become tangled in an echo chamber of feedback that defeats any attempt to separate out the user from tool, or one tool from another²

Another concern of contemporary projection art is the way we can create of feelings of immersion on the viewer through manipulating scale in proximity to the viewer. Historically was can look back into different techniques that have been used which inform current trends in the creation of immersive visual environments we have today. Illusionary spaces of 360 degrees were found in the Casa dei Misteri in Pompeii in 60 BC where there were paintings found in a room covering the floor to the ceiling on all the walls. During the Renaissance era illusionistic spaces became in demand such as the Sala Delle Prospettive which was painted by Baldassare Peruzzi. In the mid-19th century, panoramic paintings and models became a very popular way to represent landscapes. Audiences of Europe in this period were thrilled by the aspect of illusion, immersed in a winding 360 degree panorama and given the impression of standing in a new environment.

Visual content

The imagery shown in projection mapping installations can vary extensively depending on the intended purpose of the display and the context in which it is being shown. It is a cultural phenomenon of a society shaped and changed by media. Some of the widely used purposes of this artform include; to express contemporary art concepts, in the entertainment industry, as clever advertising strategies that engage audience though spectacle, to tell narrative stories

² David Joselit, "Feedback: Television against Democracy" (Cambridge: MIT Press 2007) 20-35.



Wu Kingdom HeIV Relics



Video

<https://vimeo.com/98328100>

<https://vimeo.com/97433364>

about history, political motivated works. Due to the expansive nature of the medium and its flexibility to be altered in new environments this list is by no means all inclusive.

History

Installations exploring historical narratives also aim to be informative as well as immersive and emotive. The creative agency *Tamschick Media + Space* from Berlin managed a large format, interactive media installation for the Wu Kingdom HeIV Relics Museum in Wuxi / China in 2014. It included a completely projected 400 sqm space which interactively tells the story of the Kingdom Wu using 22 high- definition projectors, 2D and 3D realtime graphics. The linear storytelling is enhanced with interactive elements that reinforce the visitors' feeling of being transported back in time, away to king HeIV's coming into power, his fight for hegemony, the victory at the battle of Boju and other great legends of that period.³

The interactivity in this work is what makes it quite a successful and interesting example of a historically informative projection installation. Historical facts and stories might normally be depicted as a linear narrative as we have the position of looking back in time to know the outcome of the events as they happened. However in this work the storytelling is not so linear. Interactive elements allow for elements and details to unfold in response to the audience, creating greater engagement. The interactivity of this piece was made using customised software built in VVVV, developed by a team of programmers working at *Tamschick Media + Space* lead by Julien Vuillet.

Advertising

Using large scale environmental projections for the purpose of advertising has been another way to convince consumers about a product. Advertising campaigns utilise projection mapping as an inventive way to send a message to the general public. In London the phone company Nokia used the Millbank Tower as a backdrop for spectacular 3D projections on the full length of the 120 metre building. This advertisement was witnessed by hundreds of thousands of people and documentation of the event was shared online via social media sites across the globe. In regards to reaching a huge audience this campaign met its target. Yet his form of spectacle did not go without criticism for being merely eye candy and contributing to "image saturation" and "advert pollution" of the location that it was shown.

³ Marc Tamschick "Time Machine" Tamschick Media + Space, accessed June 5 2016, <http://www.tamschick.com/projekte/time-machine>

Contemporary Art Installations

Some of the non commercial applications of projection mapping are seen in galleries and contemporary art installations. In the example of Joanie Lemercier's work *Light Sculptures* the projections are reduced to light, pattern and tonal shades of flat colours. It does not include any representational images in the animations and exposes the surface quality of the form in space. The viewer's gaze is directed around the installation where parts of the structure are highlighted and other areas are left in bank darkness. This characteristic brings projection art closer to the spatial practices of sculptures and architecture, rather than the pictorial tradition of painting, despite projections reliance on a two-dimensional space.⁴

Here projection maintains its position as one of the ways in which humans can impose themselves on the world temporarily, leave no trace and not physically alter the surface they are displayed onto. Optical illusions can be created through superimposing an image onto a surface with light. However one major restrictions for these this of work is that spacial illusions work only for the exact angle that was assumed when the illusion was created. If the audience views the work from a side angle rather than directly in front of the projection the creation of optical illusion will be lost.

Remediation

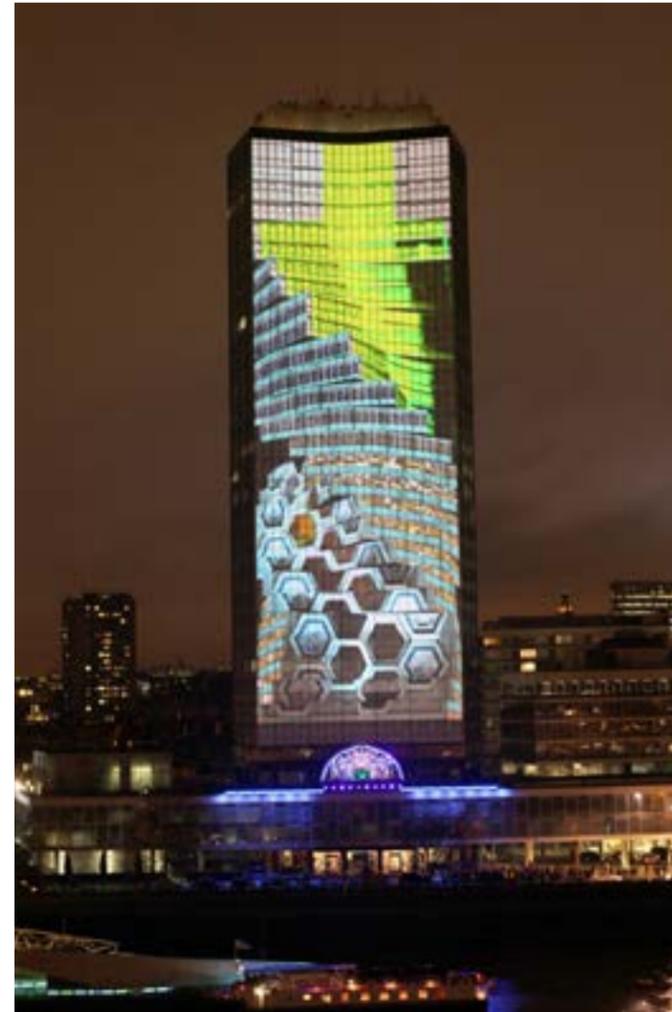
Exploring optical illusions and surface qualities with technology exposes another concept. It reveals the process of remediation inherent in projection mapping installations.

The new media art theorist Lev Manovich suggests we should look at these developments in a historical context

"The introduction of every new modern media technology, from the photograph in the 1840's to virtual reality in the 1980's, has always been accompanied by the claims that the new technology allows us to represent reality in a new way. Typically it is argued that the new representations are radically different from the one made possible by older technologies; that they are superior to the old ones; and that they allow a more direct access to reality"⁵

⁴ Abigail Susik 'Sky Projectors, Portapaks and Projection Bombing: the Rise of a Portable Projection Medium' Journal of Film and Video, Vol. 64, No. 2 (2012): 79-92.

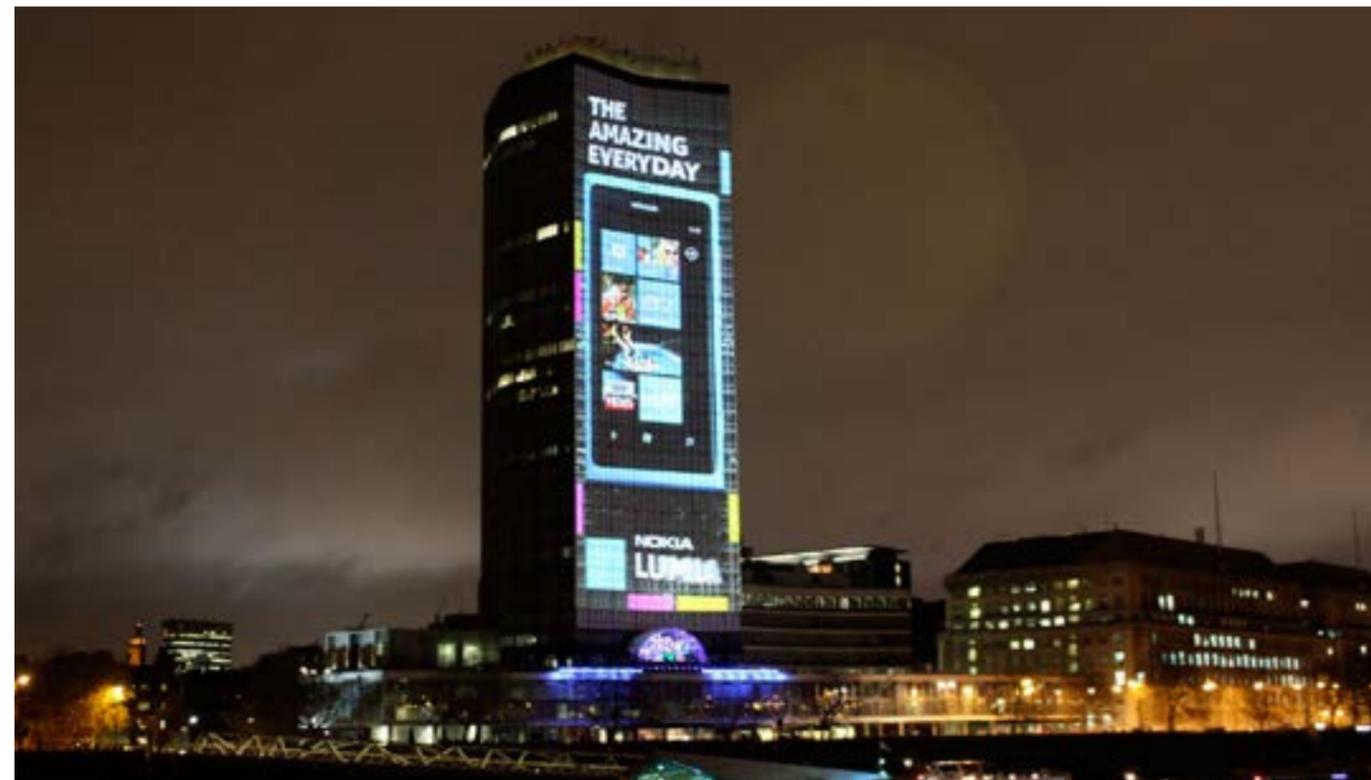
⁵ Lev Manovich, "Old Media as New Media: Cinema," (London: British Film Institute 2002), 210.



Nokia Millbank Tower London

Video

<https://www.youtube.com/watch?v=SX2Gd-kqV5s>



When looking at new media art it is important to question the concept of how 'new' it really is. Emerging technologies often reinvigorate and reform pre-existing practices rather than creating something in an aura of originality in techno utopia. Leading writers on the topic of remediation Jay David Bolter and Richard Grusin have said that this is done through a "combination of change and continuity over time" and that "new media is in a constant dialectic with earlier media" that came before it.

Remediation is present in current projection practices through the convergence of other areas of visual art such as graffiti, digital art, street intervention art, outdoor cinematic spectacles, video installation, video sculpture and theatrical displays. These areas come together, comment on each other and are often experimental by nature through crossing outside of formal medium specific boundaries.

Sougwen Chung is an artist who's work explores such territory with her installation Chiaroscuro. In this piece she uses illustrations combined with 3D projection mapping to create a spatially augmented reality. The illustrations were originally drawn by hand and were then manipulated digitally and printed to a large scale. In this process the simple expression of mark-making becomes flexible to suit a variety of contexts.

The illustrations are suspended from the walls and floor at different heights allowing for the projections to be layered at different depths in the space, on top of the image and behind in sections. The projections are fluid and enhance the lines and shapes within the illustrations.

The title of the work *Chiaroscuro* is a reference to a 17th century painting technique for the interplay of light and dark. Sougwen Chung remediates this idea with new media mapping projections by exploring the way light and dark create optical illusions of depth. She is using digital pictorial concepts in combination with digital

Sougwen Chung speaks about her work by saying that "drawing is a metaphor for basic human expression. Chiaroscuro is an immersive installation that augments the drawn image in scale, sound, and scope by harnessing the imaginative potential of interdisciplinary processes and technologies."

Immediacy and Immersive environments

Artists working in the projection medium sometimes explore the possibility of creating immersive environments with their installations. They often

seek to transfer an immediacy of experience though spectacular large scale imagery or unusual installations and spaces that the viewer can enter. In terms of *Remediation*, this approach of immediacy (or transparent immediacy) is defined as a "style of visual representation whose goal is to make the viewer forget the presence of the medium (canvas, photographic film, cinema, projection and so on) and believe that he is in the presence of the objects of representation" (Bolter and Grusin 272-73).⁶

In the public art festival *White Nights* held annually in Melbourne, Australia there are several immersive environments on presentation. This event features projection art and light installations dotted throughout the city center and it is attended by around fifty thousand people each year. Many monumental and historically significant buildings become the canvas for temporary installations for a single night.

In *White Nights 2016* the State Library of Victoria became space for an immersive installation by Nick Azidis called *Ideation*. This work was positioned in the center of the library inside the *Reading Room* which is a dome shaped space that has walls positioned in an octagonal circular structure, making the perfect site for 360 degree projections. The Dome is 120m diameter and 30 meters in height.

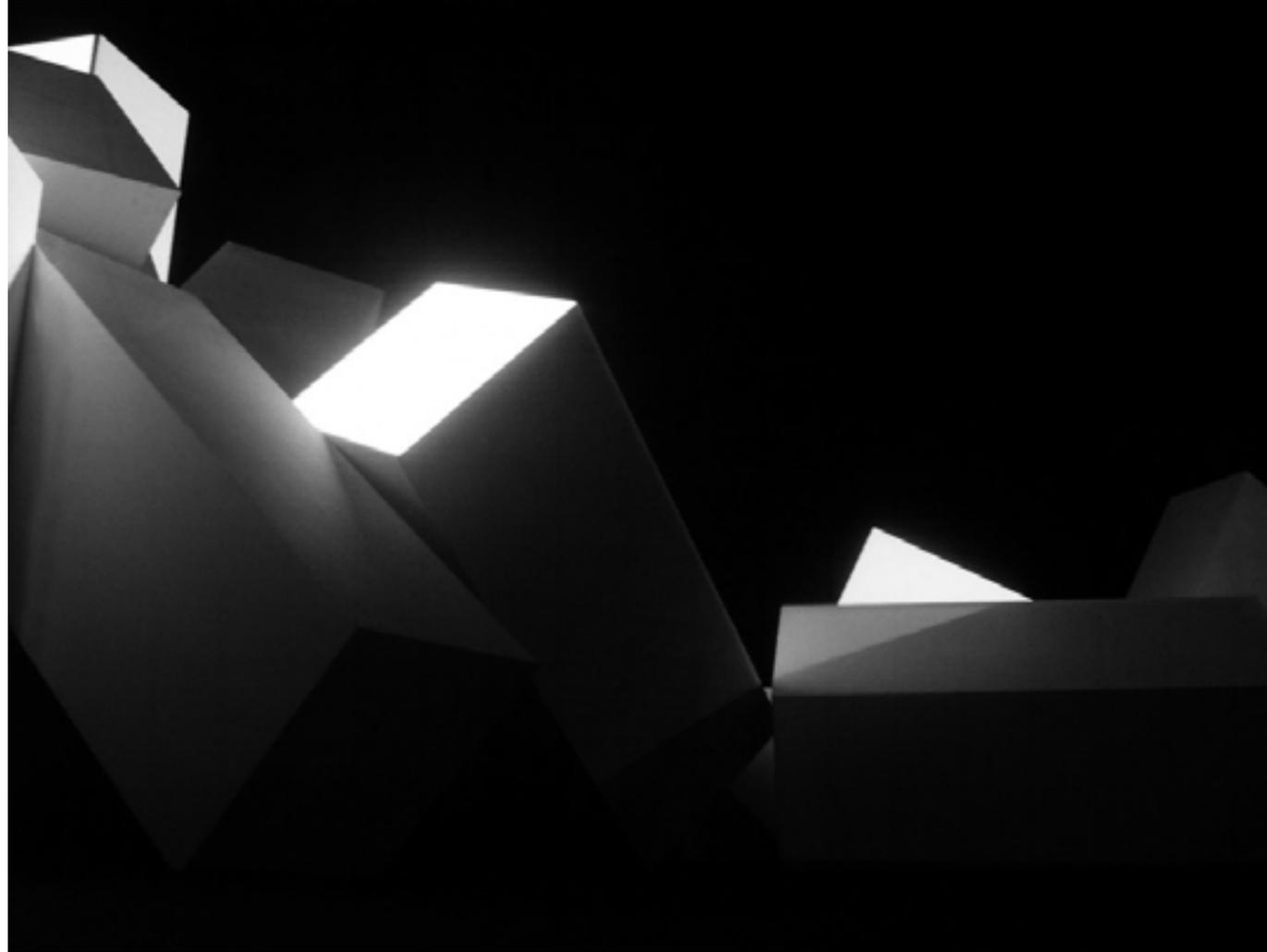
Normal human peripheral vision subtends an angle of approximately 150 degrees and so it was not possible to see every part of the 360 degree dome projections of *Ideation* from one single angle. Standing in the center of the room the audience is left with a feeling of total immersion of being inside the work; not just because of the huge scale in height of the projections but also because of the way it played with peripheral vision, triggering things on the edge of our eyesight that we can't quite see.

Psychologically installations such as *Ideation* try to engage their audiences deeply through feelings of being lost in a suspended reality. They also try and evoke feelings of empathy, identification and mental stimulation by narrative storytelling. In this way immersive environments can be seen to play with our boundaries between fiction and reality. The more convincing the immersion that we experience the greater the suspension of our own world and into the fictional world of another.

This doesn't go without critical reflection by postmodern theorists who see it as passive subjection to the authority of the world-designer, a subjection

⁶ Jay David Bolter and Richard Grusin "Remediation: Understanding New Media" (Cambridge: The MIT Press 2000) 74-98.

Light Sculptures Joanie Lemerrier



exemplified by the entrapment of tourists in the self-enclosed virtual realities of theme parks or vacation resorts.⁷ Experiencing these immersive installations in a passive position is almost regarded as naive. More sophisticated immersion can arise from an engagement involving an element of mental struggle and discovery as well as visual stimulation.

In this way the immersive experience of *Ideation* can be read on a few levels. From the aesthetic treatment of the *Reading Room* centering the viewer in space to the meditations on meaning of the work as a whole. The concepts and themes in this work may not be so initially easy to read and apparent but require some questioning and mental engagement. It explores how new ideas and perspectives manifest, interrogating the very nature of knowledge and the power of libraries to teach, inspire and grow. From the onset this artwork may not appear interactive as it does not alter narrative from user generated input. However it holds an element of interactivity through the collaboration between the reader (audience) and the text (artwork) itself in the production of meaning.

Site Specific Installations

Many contemporary projection mapping installations are site specific works of art. They take into careful consideration the surface that the projections will be shown on and the overall significance of the location that the temporal installation will be exhibited. Projections are by nature a very flexible and portable medium that allow for widespread use outside of the square screen space or gallery setting into unique environments. A site specific piece of art is defined as something that has been created to exist in a certain place where the artist takes into consideration the location while planning and making the artwork. In this way the content of projected light animations can be designed specifically to fit onto a surface or sculpture.

The use of different surfaces for projection mapping in site specific installations can be both organic and man made. Romain Tardy from the visual label Anti VJ used this idea in the festival *Proyecta Oaxaca*, an international festival of design & digital arts held in the Ethnobotanical garden of Oaxaca, Mexico. The piece was titled *The Ark* and featured projections onto a wall of cacti that stood on the edge of a pool of water. Light follows the organic behavior of plants and creates depths of the perceptual field in order to enliven a dialogue between computer-generated elements and the natural world. The location turns into a living canvas and mediates our contemplation on the

⁷ Marie-Laure Ryan 'Immersion vs Interactivity: Virtual Reality and Literary Theory' *SubStance*, Vol. 28, No. 2 (1999): 110 -137.

relationship with nature, environment, the passage of time, the spectres of being and our illuminating beliefs.

Tardy's work was shown in the context of several light projections illuminating the ethnobotanical gardens at night. The works combine together in the show to create an immersive experience through several site specific installations generating a physical and psychological journey, transforming materials and the environment into a magic geography.

The Ark is a contextual site specific installation. It uses plants as a visual canvas but also as living beings embodying an individual presence coherently integrated into nature as the unity of multiple living entities. The trail of light is an expression of the collision between nature and technology, but its luminous matter also deals with memory and recollection. The magic of light activates our recollection. Immersed in this environment, the visitor takes an illuminating mental journey to regain memory as light⁸

Spatially augmented reality is another term for projection mapping which makes use of digital projectors to display graphical information and light animations onto physical objects. The rise of the projection medium has interesting correlations to other more established art forms such as illustration, mural painting and video art through the process of remediation. It's a technique used for a variety of commercial and artistic purposes including advertising, historical education, contemporary site specific installations and entertainment. It engages audiences through exploring surface quality, sometimes using elaborately constructed immersive environments. It presents one of the future trends of visual art as impacted by technology in a movement to step outside the traditional format of the screen or canvas.

⁸ Sabin Bors "Proyecta Oaxaca" Weblog Anti VJ, posted on Feb 28 2014, accessed March 5 2015, <https://anti-utopias.com>

Chiaroscuro
Sougwen Chung



Video

<https://vimeo.com/66443975>



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Ideation
Nick Azidis



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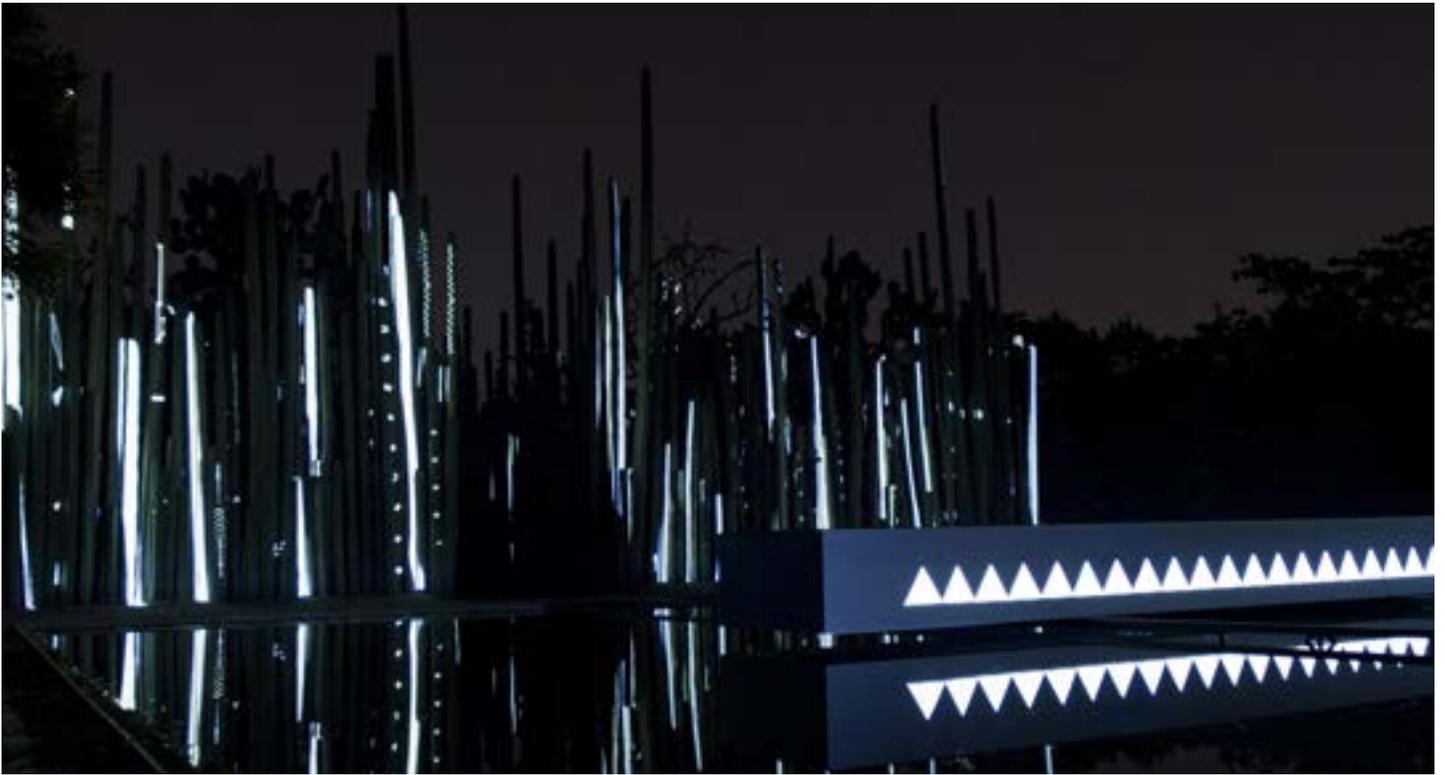
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The Arc
Romain Tardy



Video

<https://vimeo.com/85212054>