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Introduction
Are projections *speculative tools* or pure magic?20 Projections are the main material of my art works and with each work I make as an artist I ask: how do we experience projections? In the following I will consider how experiences are created using projections beyond the scope of my art work. I ask how space is constructed using projections in contemporary art and which cultural practices do artists apply. Projections are everywhere today. We are witnessing a fundamental change from framed projections we *immerse* ourselves in (cinema) to virtual images layered onto everyday space.21 Virtual images expand our understanding of space, one could say they *augment* space. This text aims to analyse the expressive possibilities of projections and the image tradition they relate to. My main argument rests on a distinction between immersive and augmenting projections.

Since the 1960s, image projection and the cinematic have become more and more pervasive in contemporary art.22 To some art and cinema cannot anymore be seen separately.23 To others the experience of “video is quite magical, almost sorcery”.24 When I enter a gallery as a spectator, I see video works spread onto the walls in dark viewing rooms, sometimes divided over several screens or projected onto surfaces suspended in space. I walk between screens, I am surrounded by projected light, I experience time splits, and feel transplanted in space. This is what sets cinematic *video-art* apart from traditional cinema: the immersive experience is not static.25 To me it appears that this immersive mode of projection and its relation to cinema dominates projection art and large parts of the theoretical discourse around projection- and media-art today.26 That is not to say it is the only way projections

20 Speculative tools see Prologue.

21 Annie van den Oever even speaks of a medium-specific period in history; a time when technological novelty makes the familiar look strange. Oever (2010) p. 34.


are used by artists. In fact projection art in the 1960's was often a critique of the mediated image and the cinematic.

Under the influence of structural film, post-minimal projection art interrogated projection space, the apparatus, and cinematic codes. Art historian Kate Mondloch observed how in the ‘screen-reliant installation art’ of the late 1960s and early 1970s the screen became the central object of investigation. She sees Michael Snow’s installation works as ‘pivotal’ to this period in projection art. Snow places emphasis on the materiality of the screen yet displays its properties as a virtual window. Snow’s phenomenological attitude can also be observed in projections by other artists of the period. For instance Shadow Projection (1974) of Peter Campus, or Nam June Paik’s Zen For Film (1964). These works dismantled the projection mechanisms and offered an analytical form of viewing. Instead of stripping away, other projection works were layering space creating what one could call an augmented experience. (Joan Jonas’s use of projections in her stage performances like in Mirage (1976), or Robert Whitman’s Cinema Pieces (1964-65) combining sculpture and projection). This comes close to the principles of Expanded Cinema. 1960s Expanded Cinema connects to the 1920s avant-garde, constructivism, and pre-cinematic projection practices. These works do not absorb the viewer into another reality beyond the screen, but they extend material space, one could say they augment space. Augmentation of space is a virtual enhancement of material reality which we experience with our senses.

‘Reality’, ‘virtual’, and ‘screen’ are returning terms and my use may require some clarification. I have no pretence to giving a definition or enter into any discourse on ‘existence’. I will make a distinction between virtual- and material-reality in order to distinguish ‘projected space’ and the ‘material space’ we occupy. Anne Friedberg defines virtual as “acting without the agency of matter” in the introduction to her book The Virtual Window. I often refer to screen reality, which I understand as a ‘virtual reality’ manifesting itself on a flat (cinema) screen. This may be misleading as any projection needs a screen to manifest itself. In case of a projection mapped

27 Trodd (2011) p. 11. Structural Film was an experimental film movement of the 60’s and 70’s, specifically looking at semiotics, material, and technological properties of film.


29 Ibd.

onto a three-dimensional object, the ‘screen reality’ and ‘material reality’ are merged into a ‘mixed reality’, we see the projection ‘augmenting’ the object. I argue, instead of thinking about material and virtual reality in strictly oppositional terms, such as real/imagination, material/immaterial, outside/inside, hard/soft etc., we might understand reality and imagination through the idea of extension or augmentation.

To augment literally means to enlarge. When creating an augmented space, a projection enlarges space, but how exactly? Augmentation is defined in computer science as follows: “An augmentation combines virtual and material elements in real-time by registering or mapping a projected image onto three-dimensional objects or space”31 [italics SE]. Augmentation and its technology has been a field of study in computer science for the past forty years and we now are witness to the first commercial applications. It seems, however, that augmented reality has received little attention outside of computer science and some enclaves of electronic art.32 In contemporary art theory augmentation as a method seems to be largely absent. It is here where this text sets in: what drives the study are my observations on the difference of immersion and augmentation in projection art. I want to distinguish between screen based and space based projection and study their respective impact as well as the image traditions they link to.

**Immersion and augmentation**

A trope for immersion is the window or frame through which we enter a virtual world. Immersion presupposes a *willing suspension of disbelief*, and it implies an opposition between material reality and imagination. I turn to the idea of *willing suspension of disbelief* to explain how immersions prompt empathy. The term ‘*willing suspension of disbelief*’ originated from literary studies and has its place in cinema theory. For the romantic poet Samuel Taylor Coleridge *willing suspension of disbelief* meant *poetic faith*.33 According to his theory, a reader willingly suspends her disbelief while immersing herself in a literary illusion. The theory is based on

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32 This is partly a financial question as video mapping software and technology have not been readily available. We have seen many architectural mapping events as advertising spectacles. Now that software and technology are much cheaper, more experimental video mappings and audiovisual performances are surfacing. (32. Docfest Kassel, 12th Havanna Biennial).

33 Coleridge (1817) p. 267.
the assumption that there is a difference between material reality and imagination. Coleridge’s literary concept can be extended to other art forms, such as theatre, film, and also painting.

I argue furthermore, in contrast to immersion, that augmentations can be experienced as magical. Let me be very specific about how I will use the word ‘magic’. It is a word with a shady reputation. It may mean spellbinding and remarkable, of another kind, or refer to something beyond rational understanding, occult, even abstruse. We may think of magic as trickery and foolish superstition. The word magic is derived from the Old Persian Magi, which was a term used for priests. Magi were also tutors of the sons of the Persian kings, and are the biblical ‘wise men from the East’. In his book on magic Sociologist Marcel Mauss explains magic as mimetic sympathy, where the image takes on the properties of what is represented. This comes close to an analogical demonstration. Historian of early modernity Koen Vermeir defines this concept as visualising something present but not directly visible, extending our vision ‘magically’. I will come back to magic and analogical demonstrations in chapter 1 and 5.

As I understand it, our view of reality is altered when virtual images (information) are projected into material reality. Augmentations make our everyday world strange. An augmentation is magical when it is experienced as an analogical demonstration. These magical encounters can create critical distance by ‘making strange’. This finds a parallel in the idea of ostranenie (Russian for making strange) and, in extension of that, Bertolt Brecht’s theory of Verfremdung (distancing). Brecht developed a theatre praxis that broke with the dramatic theatre of the age, which, in his words, had the spectator say: “Yes, I have felt like that too. – Just like me. – It’s only natural. – It’ll never change ... That’s great art:

34 Like in the quote at the beginning of this introduction.
37 Mauss (2005) p. 84.
38 Ostranenie is a term coined in 1916 by Literary theorist Viktor Shklovsky. Verfremdung is sometimes translated as alienation. Alienation is mainly associated with Entfremdung. It is difficult to translate both words into English. Anne Halley and Darko Suvin translate Verfremdung as distancing. Bloch explains how Brecht’s Verfremdungseffekt “occurs as the displacement or removal of a character or action out of its usual context, so that the character or action can no longer be perceived as wholly self-evident.” Bloch (1970a) p. 121.
everything is self-evident – I weep when they weep, I laugh when they laugh.”Brech
tended to distance his viewer from the story unfolding on stage, exposing
them to a critical discourse. The spectator should say: “That’s great art: nothing is
self-evident.”

To illustrate my ideas on how augmentation could create critical distance
in projection art, let me give an example from my own practice: Victory (2004), a
projection exhibited at the Museum für Abgüsse Klassischer Bildwerke in Munich. The
work dealt with European appropriations of ancient Greek sculptures. A plaster copy
of the Nike of Samothrace dominates the entrance hall of the Museum at the Ludwig
Maximilian University. The museum is housed in what used to be the headquarters
of the Nazi Party. This brought together two sensitive subjects. The Greek sculptures
were displayed in the tradition of ‘simplicity and grandeur’. And the building was
seen by the museum staff with a certain amount of inhibition for reasons of German
historic guilt with respect to their National Socialist past. Both issues seemed equally
untouchable. I projected a video clip onto the Nike of an aggressive, noisy and bloody
cock-fight, which I had filmed in Pakistan. The projection casts a large shadow of
eagle like wings onto the atrium of the museum. The assistant curator and other daily
users of the building were appalled: Firstly, one could not intervene in the grave Nazi
architecture, and secondly, Nike, the goddess of victory, was soiled by the vulgarity
and violence of the ‘Asian’ cock-fights. What appeared to be disconcerting to the
museum staff was how the projection and its shadow, without penetrating any of
the surfaces, estranged the familiar conditions. The projection made the space look
strange. It created a critical distance to what the viewers were accustomed to seeing.
In this way I see augmentation as a tool of distancing.

Field of study
The majority of research texts I consulted on video art have been written by
artists. This text is an artist’s contribution to media art theory. It focusses on the
role of projection as material for sculpture. I started my inquiry into the theory of
projection after fifteen years of working with this medium. My practice has been a

40 Ibid.
41 Such as Oursler (2001), Elwes (2005), Rush (2005), Douglas (2009), EXPORT (2011), Mekas
valuable departure point as I have a theoretical as well as practical understanding of projection. This text should be read as an analysis of projection as material and medium. At the same time, it will expose the image tradition I work from. As already mentioned in the prologue, I wanted to learn more about projection beyond the field of art history. In this sense, I take a historic-analytical approach when looking at projection as a material in art making. This text is written as an exchange about praxis between artists using projection in their work and I hope to contribute to the ongoing discourse in our field.

You may have noticed an inconsistency in the above paragraphs. I have referred to projections as video-art, media-art, and projected images, I could add electronic-art or moving image to enhance the confusion. In the field of study, art using projection and the moving image, a common vocabulary has not been clearly established and there are different approaches to history, origins, and categorizations.42 The common denominator is the use of the term ‘media’ as a category. The Oxford dictionary defines media as a means of mass communication, which could include video, radio, television, film, photography, books and other print-media. Under the umbrella of media-art sub-categories could be projected images, sound-art, video-art, web-art, photography, television, or film. These sub-categories have very fluid boundaries.

Media-art is often regarded as a relatively young discipline positioned between film, television, and performance.43 It has been explained through the development of its technology.44 No doubt, technology plays a pivotal role in projected-image art. My interest in the history of projection is not from a technological point of view.45 I want to focus on the projected not the projector.46 In this text, I will be dealing solely with the category of image-projection. Projection does not necessarily imply a specific medium or technology. I include slide-, film-,
video- or digital image-projections and, to some extent, light projection. Instead of projection, art historian Tamara Trodd uses the phrase projected-image art in reference to the seminal exhibition at the Whitney Museum in 2001 titled Into the Light: The projected Image in American Art. Trodd sees projected-image art as distinct, even separate, from the tradition of (cinema-projected) artists’ film. She says projected-image art has largely grown from an ‘art-world context’. Surrealism, Moholy-Nagy’s ‘New Vision’, as well as “the wider history of visual art in general” are influences she lists. The ‘wider history of art’, in all its generality, may turn out to be too restrictive when we are looking for traditions, roots, and influences that projection art has grown from. Moholy-Nagy developed his theory on vision by looking at advertisement, design, popular media, engineering, and architecture. Following his lead, I want to turn to visual art and the tradition of film, but shall also consider those instances of visual culture that are beyond the scope of art history, such as literature, mythology, variety entertainment, phantasmagoria, or religious ‘superstitions’, spirit media, and clandestine trickery.

The historical examples I use are not intended to suggest a chronology of projection practices. I am not interested in genealogies of technical innovation. However, I observe a critical shift when immersion became articulated as the dominant paradigm in projection. The developments of new projection technologies in the early modern period coincided with a redefinition of ideas on reality. Magic was outlawed in favour of rational knowledge

47 The exhibition was curated by Chrissie Iles. Trodd (2011) p. 5.
49 She acknowledges one exception and names ‘structural film’ as a shared ancestor of film and projection art. Trodd (2011) p. 6-8.
50 One important outcome of his studies, the Light Prop for an Electric Stage, was a kinetic light projector. Moholy-Nagy (1930) p. 297-299.
and the Enlightenment project aimed at dominating sight and exposing magic as visual error. Illusions were understood by ‘suspending of disbelief’, not as magic. Today we can observe a second shift in image culture: mobile computing layers virtual images into space as augmentations of our everyday. The projections make our surroundings look strange. If we give belief to the story about Stark Enterprise told in Iron Man, in the future augmentations developed by large corporations are going to dominate sight. This commodification is what the philosopher Ernst Bloch identified as the evil mode of strangeness. Bloch explained how alienation in a negative sense means a commodification of our lives. He also saw a positive strangeness, a making strange which makes us look up in awareness. I suggest that, Enlightenment and today’s virtualisation of our everyday lives constitute two fundamental moments in the history of projection.

**Delimitation of research**

During my research I came across many astonishing historical examples of projections. However, it is not my intention to give an overview of the history of projection, or projection technology neither do I want to create an anthology of contemporary projection art, but I present capita selecta which are relevant to my artistic research. I mention only a few artists whose works seem especially relevant to my argument and I leave large gaps. For instance, I have not included shadow projections (Mona Hatoum, *Light Sentence* (1992) and Nalini Malani, *In Search of Vanished Blood* (2012)) or immersive light environments or spaces (such as we know of Otto Piene, Olafur Eliasson or James Turrell) mainly because I concentrate on projections generated by a projector as light source and image carrier. I would have liked to give more space to works creating projection spaces

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52 *Iron Man* is a comic superhero from the 1960’s. The figure features in *Iron Man* dir. by Jon Favreau (USA: Marvel Studios, 2008).

53 Bloch (1970a) p. 121.


55 With the exception of Moholy Nagy the works I look at projection figurative images. Furthermore, in the literature I consulted on projection art, video- or media-art and art of the moving image, shadow and light projections do not find much mentioning.
(works by Diana Thater, Nalini Malani, Pipilotti Rist to name a few) or using architectonic screens (much admired by me: Aernout Mik) and bordering on immersion and augmentation. I do not mention some widely seen architectonic approaches happening outside of the gallery space. For instance, video mapping, VJ-ing and facade projections that are displayed at a great number of urban ‘light festivals’.\textsuperscript{56} I also mention far too briefly the influence of the World Exhibitions in regard of the development of spectacular projections. These commercial projection sites have been, and are, testing-grounds for projection technology. They show interesting links to the spectacle of the vaudeville and fair-ground, however, as I know from personal experience, they are rarely places of artistic innovation.\textsuperscript{57} I have also not included the use of immersive and augmenting projections in theatre productions, whether it is Jesuit theatre, Goethe’s interest in the magic lantern, the light projections of Loïe Fuller, a major sensation of the variété-theater in the late 19\textsuperscript{th} century, the political theatre of Erwin Piscicaitor in the 1920’s, the \textit{Laterna Magika} of Prague, todays Broadway theatre and popular music concerts like late rapper Tupac’s resurrection in 2012 by ‘hologram’.\textsuperscript{58} The use of projectors as stage tools is material for a study in its own right.

This study approaches projection from a European perspective. This framing is not only a matter of limited space. Claims about the distinction of real and illusionary space were a result of the European Enlightenment. It is the division of space, in fantastic and realistic, in screen space and material space, that I wanted to criticize. In my artistic work, I often experienced the space of screen as part of the corresponding reality, not separate from it. I therefore mainly use evidence from the European artistic tradition. My focus on developments in Europe does not imply that I think projection practices have developed in Europe in isolation. To give an obvious example: without the theories on optics by Ibn al-Haytham (Alhazen), scholar in 12\textsuperscript{th} century Cairo, translated by the monk Erazmus Ciolek Witelo in the 14\textsuperscript{th} century, Christiaan Huygens’ could not have developed the


\textsuperscript{57} In 1999-2000 I was the art-director of the \textit{World Wide Projects} for the EXPO-2000 in Hannover Germany.

\textsuperscript{58} Pepper’s Ghost projection at Coachella Valley Music and Arts Festival developed by 3D holographic projection company Musion.
lenses, that made the magic lantern effective. I agree with art historian Kitty Zijlmans when she says that “[f]or centuries art [or culture in general] has been fed by a diversity of cultural sources and impulses, and it can never been tracked down to only one point of origin.” I briefly refer to projection examples in India and Japan. By way of contrast I want to emphasize that the European developments of reality and illusion were by no means exhaustive or exclusive.

Structure of the thesis

The six chapters of the thesis do not follow a chronology, rather, they each constitute a facet of my research findings, placing immersion and augmentation in the context of visual art, visual culture, technology, literature and my own practice. While studying the literature on projection I found many illustrations, images and descriptions of projection experiments, inventions, and occurrences. For me this was one of the most pleasurable parts of the research: how might a projection experiment have looked, what might the audience have encountered? The inserts running along the main text are a reflection of this.

In chapter 1, *Immersion or Augmentation: Two Technical Terms*, I introduce the two main concepts I work with in this text, immersion and augmentation.

Chapter 2, *Image Projection in Contemporary Art: Almost Realities and Expanded Reality*, gives a brief overview of projection in contemporary art. I cite Chrissie Iles’ three phases in projection art: a phenomenological, sculptural, and cinematic phase. Iles’s chronology largely bypasses Expanded Cinema. I ask the question: can we look at projection art as a layering of space?

Chapter 3, *Conditions of Illusion: Performing or Staging Projections*, establishes how virtual space is articulated in visual culture. I want to find out how do we understand the ‘reality’ of a projected image. I draw upon several art historians to look at social and technical conventions of vision and illusion. I close with two examples from art history illustrating how a projection can be staged on a screen or how the screen can perform a projection.

Chapter 4, *An Image Tradition: Historical Examples of Projection*, briefly looks at the history of the magic lantern projection apparatus. Since its invention, the projector was used in disparate fields such as warfare, education, entertainment, charlatanry, church propaganda, and advertisement. I place the

emphasis on augmentation as a projection practice demonstrating how, maybe marginally, augmentation never has been absent from the history of projection.

The Conclusion: The Magic of Projection, examines immersion or augmentation as a transformative moment in stories. What I want to illustrate with the literary examples is how the use of frames enables willing suspension of disbelief and immersion, and that augmentations are seen as making the familiar strange.

The Epilogue: Artistic Practice, takes the initial question back to my practice as an artist. How do I create experiences using projections? To me projection is a medium with which to create propositions: possibilities in space. They are like a ventriloquist’s dummy, saying out loud what is invisible or unspoken, yet inherently present in an object.
Projection PROTEST or SPECTACLE: No Somos Delito⁶⁰ and The Illuminator

“Worlds first political protest by hologram” is the subtitle of a photograph of a public projection that took place in Madrid on the 10th of April 2015.⁶¹ News on the demonstration against the disputed Spanish Citizen Protection Law, effective from the first of July 2015, went through the global media; CNN, New York Times, de Volkskrant, the Daily Mail as well as various online news services ran the story.

The conservative Spanish government initiated the new law to curb citizens right of dissent, which has risen drastically in response to austerity politics and corruption. The law means that “[u]ltimately, if you are a person, you won’t be allowed to express yourself freely. You will only be able to do it if you become a hologram”. This is what it says on the Holograms for Freedom web site.⁶² The slick project web site outlines the hologram protest, informs about the ‘gag’ law, and invites participation.

Only few days earlier another ‘hologram’ protest took place, this time in New York. A plaster bust of Edward Snowden had been installed on the 6th

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⁶⁰ We are not crime.


⁶² http://www.hologramasporlalibertad.org (accessed on 24.4.2015)
of April at Fort Greene Park. The tribute to Snowden had been confiscated by the police. As a response The Illuminator Art Collective recreated a virtual Snowden bust. The artists projected a line drawing onto emerging smoke. The press coverage of this project did not compare to the global attention for the Holograms for Freedom action.

Neither of these projects were holograms, but projections that used smoke or a glass screen (Pepper’s Ghost) to catch the image. Holograms for Freedom claimed to be ‘the first’, which is also debatable. However, these are but small details. Both projects are presented to us as projection protest. Both took place in public space, yet they were seen only by few people at the moment of projection. We experience the projections in a mediated form. In case of the Illuminator the documentation was circulated among activist, Holograms for Freedom approached the mainstream international press. Yet, both were powerful interventions and successful in their own way. In comparison, I see one as a clandestine protest the other as a spectacle.

The Holograms for Freedom website suggests that No Somos Delito have initiated the hologram protest action. However, in an interview, a spokesperson of No Somos Delito pointed out that the idea for the project came from ‘a group of media professionals’ who preferred to remain anonymous, “because they wanted all the attention to be for the platform”. The New Yorker article of April 20 tells a different story: Javier Urbaneja, a publicist for the advertising agency DDB, remembers how the initial idea came to his mind and how he and his colleagues then executed the project. They did technical research and teamed up with a production company. They created a web site and produced the ‘holographic’ footage, acquired permission to stage and film a projection in front of the Spanish Congress. The event was widely announced – not to Spanish citizens but to the international press. According to the New Yorker some 30


64 The Snowden hologram was reported in the New York Times.

65 The website does not refer directly to any other organizers, although the legal document mentions an ambiguous “Promoter”.

On their website The Illuminator present themselves as a collective art project. Their mission is to "smash the myths of the information industry and allow people to find out for themselves what the 99% movement is fighting for." The project grew out of Occupy Wall Street. They were beaming a ‘bat signal’ reading 99% during the Occupy Wall Street protests. Since 2012 the art collective has staged projection protests all over the world and teamed up with local action groups. Their website archive documents a long practice of protest projections, one of which is the Snowden at Fort Greene Park. The projects are not technically sophisticated, nor does the collective mystify how they work. The Illuminator website has a how-to guide for prospective projection activists. They seem to be quite aware of an artistic and activist tradition of projection protest. In an interview Mark Read, one of the artists, mentions Dziga Vertov and Agit-Train as well as Mobile Cinema of the 60’s. Other influences could be the projection interventions addressing the New York housing crisis of the 1980s by Krzysztof Wodiczko or Imi Knoebel’s Projection X (1971). In contrast to Holograms for Freedom, the primary audience of The Illuminator appears to be the street protesters, activists and random onlookers. The Illuminator is a tactical media tool which can transform a space, the activist artists call for action and operate as Superheroes.

68  DDB Worldwide Communications Group Inc. is owned by the Omnicom Group, one of the world largest PR firms who has eminent clients such as the Russian Government. For instance, thinkRUSSIA.com is managed by PR firm Ketchum (owned by Omnicom) on behalf of the Russian Federation.
