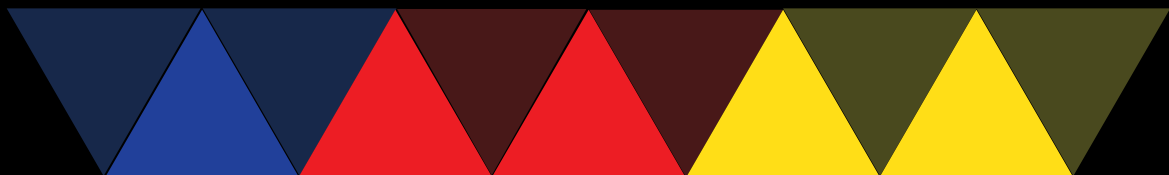
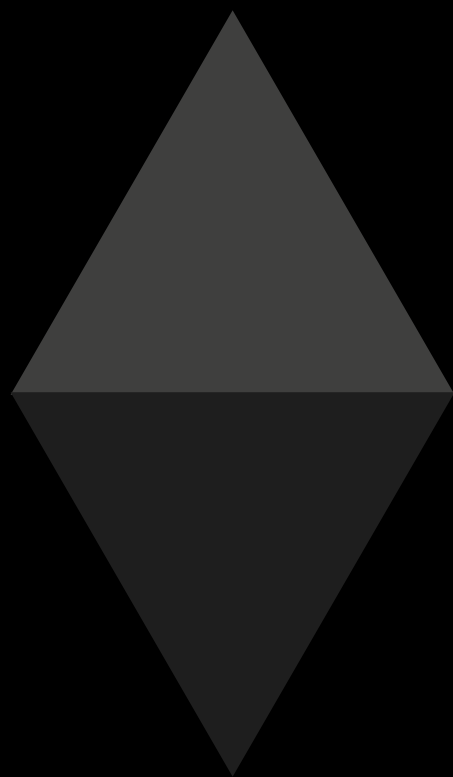
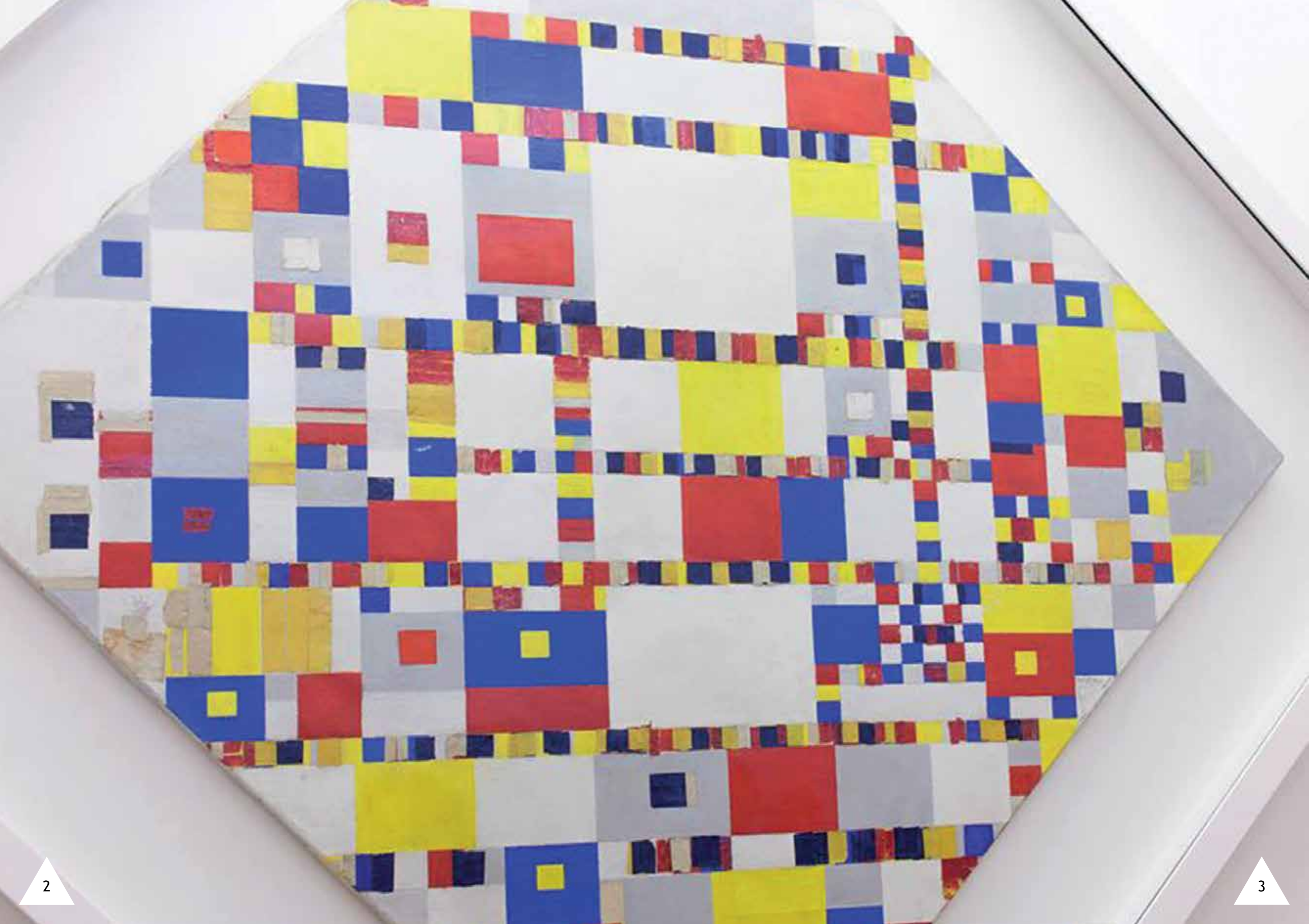


CSI:  
VICTORY  
BOOGIE  
WOOOGIE  
'13/'14







## COLOPHON

### EDITORIAL BOARD

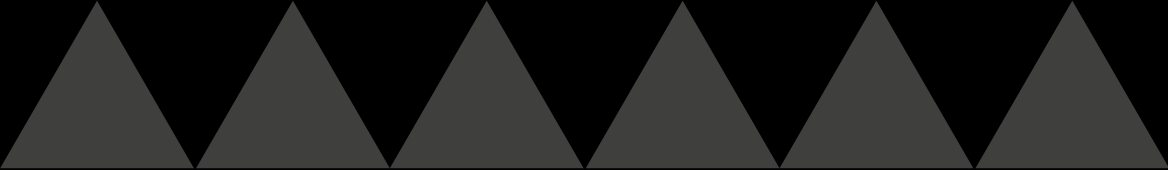
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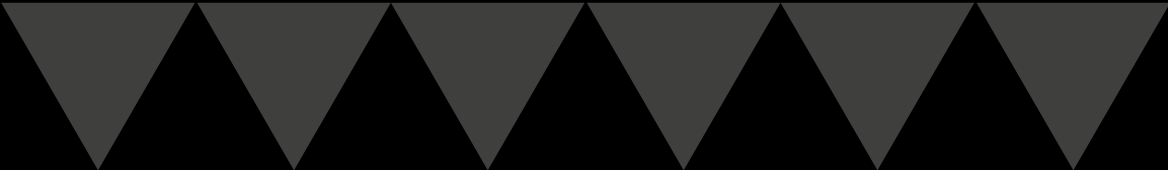
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INTRODUCTION  
JACCO  
VAN UDEN



# Victory Boogie Woogie Previsited

## Imagining the future of art

Victory Boogie Woogie is the last work by Dutch abstract painter Piet Mondriaan\* (1872-1944). It is an iconic work by all standards. A masterpiece, painted from the death bed. An unfinished painting, purchased by the Dutch government at a cost of 35 million euros. An undying source of inspiration to many (artists).

Victory Boogie Woogie has an impressive history. But does it also have a future? In twenty years from now, what (physical) condition will the painting be in? How will Victory Boogie Woogie speak to us then? In what ways will we be able to engage with the work? What will it take for Victory Boogie Woogie to remain its relevance in the year 2034? What role will the original painting play in future encounters with Victory Boogie Woogie?

In 2013, the Netherlands Study Centre for Technology Trends (Stichting Toekomstbeeld der Techniek, STT) initiated a pro-

ject to answer questions like these. This project, CSI Victory Boogie Woogie, was part of a foresight study on new relations between art, science and technology. For more on this foresight study, please go to <http://stt.nl/projecten/kunst-techniek/>

The overall ambition of CSI Victory Boogie Woogie was to explore the role new technologies may play in the life of the Victory Boogie Woogie. By using the word 'life' we wanted to stress that something valuable is at stake here, something worth preserving. But life also refers to a future - open, mouldable, full of possibilities and opportunities.

In the course of time CSI Victory Boogie Woogie evolved into a joint effort of various parties, all of them interested in developments on the intersections between art, science and technology: the Cultural Heritage Agency of the Netherlands, the Foundation for the Conservation of Contemporary Art, University of Amsterdam (Art History), the Royal Academy of Art (Interactive Media Design; AR Lab), The Hague University of Applied Sciences (Industrial Design Engineering), and a designer who brings together historical objects and high tech (Studio Maaik Roozenburg) and, of course, the Gemeentemuseum Den Haag, where Victory Boogie Woogie is on permanent display.

CSI Victory Boogie Woogie developed into a project in which students from three universities would become the principal explorers of new relations between art, science and technology. Their job was to

1. decide for themselves - individually but preferably in (interdisciplinary) teams - what part of the Victory Boogie Woogie's 'life' they wanted to focus on;
2. identify the (new) technologies that they believed will be relevant to that aspect Victory Boogie Woogie's life. This could be anything, from social media to 3D-printing and from augmented reality to nascent technologies for restoration and preservation;
3. assess to the development of these technologies and
4. think through the impact of the chosen technologies on Victory Boogie Woogie.

In essence, CSI Victory Boogie Woogie was a project that offered participants the opportunity to reflect and find out for themselves how art, science and technology could work together. In that sense, the painting itself - Victory Boogie Woogie - was 'merely' a vehicle for imagining a future when art, science and technology GEMfind each other in new, innovative ways.

In eight weeks' time the students were given the opportunity to take control over the CSI Victory Boogie Woogie project. The organisers / mentors designed a core programme of lectures and site visits to help the students find their way. At the same time students were stimulated to sort out for themselves what they would need - in the broadest sense of the word - to customize the project to their particular interests. But above all, students were invited to tap into each other's ideas, insights and findings.

On December 20, 2013, the students presented their findings. This book shows what their images of the future look like.

---

\* Mondriaan changed his signature to Mondrian during his residency in Paris in 1912. His new signature sounded not only more international, it was also to avoid confusion with his uncle Frits Mondriaan who was a painter too.

# ART IN THE FUTURE LAB SPECIAL THANKS

The Netherlands Study Centre for Technology (STT) would like to thank the students and partners for their wonderful contribution to the project.

## A PROJECT BY

- Stichting Toekomstbeeld der Techniek

## IN COLLABORATION WITH

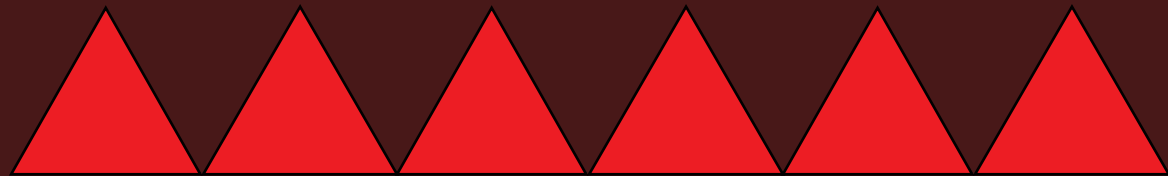
- AR Lab
- Boijmans / AR Tube
- Cultural Heritage Agency (RCE)
- Gemeentemuseum Den Haag
- Royal Academy of Art (KABK)
- SMBK
- The Hague University (HHS)
- TU Delft
- University of Amsterdam (UVA)
- V2\_

## SPECIAL THANKS TO

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- Pieter Jonker
- Rob Bouwman
- Rogier Brom
- Sandra Fauconnier
- Willemijn Elkhuisen
- Wim van Eck
- Yolande Kolstee
- Ysbrand Hummelen



KABK  
I/M/D  
KONINKLIJKE  
ACADEMIE  
VAN  
BEELDENDE  
KUNSTEN



TEACHER /  
SUPERVISOR  
IMD DEPARTMENT  
KABK  
NICK  
VAN 'T END

First year Interactive Media Design students (IMD is a 4 year bachelor course) from the Royal Academy of Art in The Hague, in collaboration with the AR Lab, participated with great enthusiasm and motivation in this Victory Boogie Woogie project.

IMD, a broad and multidisciplinary course gave these students the opportunity to participate in a project that offered even more challenges. Within this project students had to dive into the world of Piet Mondriaan's final work the Victory Boogie Woogie, with a strong focus on technology and future aspects of art. The students were given the assignment to study and do desktop research on Mondriaan, the Victory Boogie Woogie, new technology's and how this all might merge and will be relevant in the future. In the beginning this generated a lot of uncertainty among the students. They were completely free and could go where their motivation and creativity would lead them. Instead of telling students what to do, the teachers gave mainly pointers and only showed them how to

learn not what to learn. This resulted in a very good match between the IMD course itself and this VBW project; students got the opportunity to really meet their core ambitions. Students were individually researching their own area and combined these in small groups in the second part of the project. Several concepts within a group led to a variety of interactive installations shown in the Gemeentemuseum Den Haag.

The collaboration with the other institutes such as the UVA, HHS and TU Delft were inspiring and expanded and improved the student's perspectives. These collaborations lead to insights that would have never been possible if done in their own faculty only. Even though the IMD students were first year students, their participation, knowledge and insight made this project to a great success with unexpected outcomes. Following are glimpses of the amazing outcomes of this project.

The following pages show five student projects.



# CSI: Victory Boogie Woogie “Mondrianize the people”

The work Victory Boogie Woogie exists a hundred years in 2033 and that is a long time. After a hundred years do we still understand his work? Or will we be able to understand it better. What did Mondriaan want to achieve with this work? And could he achieve it better in the future where there are more technologies? Not many people understand him or even try to understand him and his works, and that's why we want the focus to be on Mondriaan's ideas and make them understandable with the possibilities of the future.

In our group of four members we started off in all different directions: Lotte researched about the inspiration flow between art and advertisement, the use of design in the commercial world, Alina focussed on what kind of influence our subjective observations would have on the identity of Mondriaan, Julia did research on De Stijl; the art movement and magazine which Piet Mondriaan was a mem-

ber of and Anton did research on virtual representation of beauty in the future.

In the spirit of Mondriaan's idea of Total Work, a work of art which contains all different disciplines in art, we decided to combine our interdisciplinary research into one idea.

We've put these ideas together and used our research to finalize the main focus point: the movement and energy that Mondriaan emulated in his work.

Every visitor will be a part of the Victory Boogie Woogie by giving them a colored hat. A camera takes a photo every 5 seconds and the photos are projected on the wall. Because every person has a different color, the movement will be visible very clearly. The people are the movement, the Victory Boogie Woogie is the movement. We hope there will be various technical alternatives for the hats in the future, to make it even more exciting.

By physically and mentally placing the audience in the new environment of experiencing the world of the: VBW they will believe it and understand it better. They will be going through a transformation of becoming the Victory Boogie Woogie of Mondriaan.

“We want to show the movement and energy that Mondriaan emulated in his work. We want to Mondriaanize the people”.



# Network Temperaments

Our individual research brought us to different aspects into Mondriaan's life and artworks. We consequentially had varying reactions, shown through our research. However through the contrasts in exploration we were able to combine concepts into an installation.

Raya explored the idea that Mondriaan put into them - the perception of own environment and worldwide environment. By painting the VBW, the artist wanted to show that each one of us is thinking and living in his own 'box', limited and framed in his own world. The painting VBW is showing how the world's perception is in fact limitless and out of our reach.

Ari questioned, how does Africa not be "Africa". From there I metaphorically dipped my toe in nano technology. Exploring not only the vast possibilities that give rise from it but also some of the negative impacts to the human body, and the economy of less economically developed countries.

Sarah researched what it does mean to be a quantified self within a tracked so-

cial network. Connections between relational ideas, that our environment influences our interactions and behaviour.

The interactions of our ideas brought us into questioning the never-ending appeal of unfinished art, as it's an intriguing insight into the mind of a creator, this connects to Mondriaan's unfinished Victory Boogie Woogie. However for the project, it will be a look into the collective behaviour of the exhibition space filled with people. To show in depth this idea, the composition will be recorded through sequential photographs from above. Every minute a photo will be taken and composed into a live film displayed on a laptop beside the composition of clay. We expect to present a lived looped clip of all the photographs, continually adding to the collection as time extends.

We found hand movements and clay pieces absent through the minute photo tracking. This is favourable, as it will represent the conceptual message we want to convey. Networks are formed by human activity, it's our actions through technology that forms a reaction. A social network is not always perfect, connections come and go, and so does the clay. Key variables that will affect the process of the project are the size of the exhibition space, the number of

people, their movement in the space and the density of the space. The movement within the exhibition space will control the fluidity of the process. Therefore it's hard to predict the outcome and how the space will conform to our vision.

The focus is on the process rather than the end result, although once the exhi-

bition has finished, the process has realistically stopped. What is left is the final composition of clay in an unknown orientation and the complied photographs of the process. Which are both there as documentation and illustration of the concept.

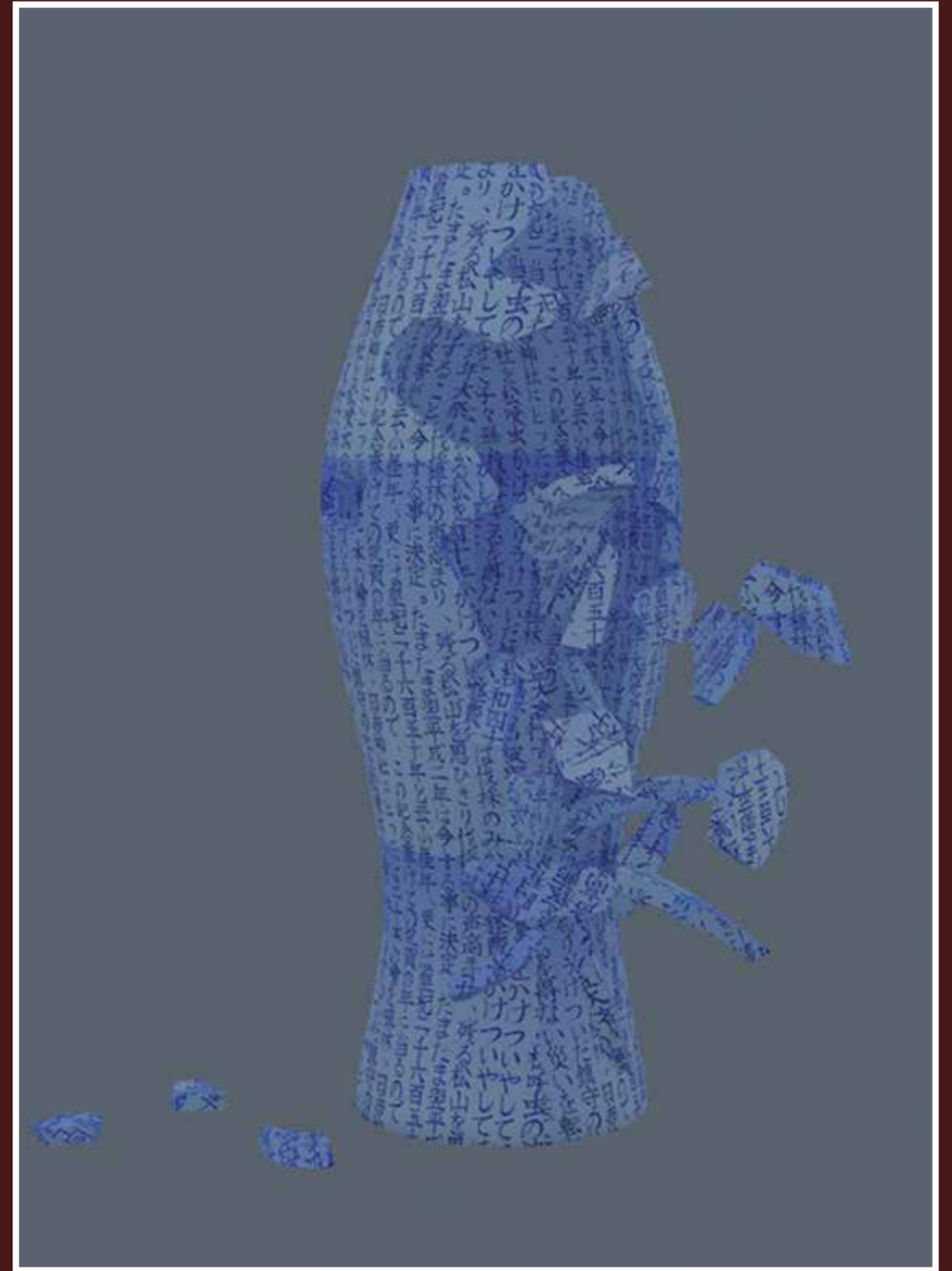




# Disintegrating Art Piece

Everything changes when time passes. Just like Mondriaans Victory Boogie Woogie will be destroyed because of the fact that it is being watched. It has been influenced over the years by light and oxygen. The only way to avoid this, is a dilemma — if we put it in a room without light and oxygen, which means we can not visit it anymore. Our art piece will show this fact in a metaphorical way. A fragile object will disintegrate when visitors look at it. It will show cracks, bursts and a change of color.

In this concept, we tried to connect our own research with our artwork experimentally: In a traditional way, the “degrading” process of an artwork is physical — smashed, rusted and so on. However, what if a traditional art piece such as a ceramic, a vase, a painting is degraded in a virtual, interactive way? In the past, the artworks degraded by our touching, our breathing, our camera flashing, yet, in the future, in the mass media time, what will course the degrading process? We are all talking about the big data and the mass media. The media will be immortal, or just degraded by our observing?



# “Soundscape of Colors”

“Victory Boogie Woogie” is the last work by Dutch abstract painter Piet Mondriaan. This painting is one of the master pieces of “neoplasticism” which is characterized by using horizontal, vertical lines and primary colors. Piet Mondriaan believed that his vision of modern art would transcend division of cultures and become a new common language. We inherit his idea and build more aspect.

“Soundscape of colors” is the installation which was simply constructed by primary colors and sound. We focused on color spectrum and transform frequency of primal color into sound. Randomized combination of sound and light creates an audio-visual experience and reveals new dimensions of the artwork. By entering color soundscape, audience can experience aurally the new dimension of Victory Boogie Woogie.



# The Mondriaan Keys

The Victory Boogie Woogie was never finished. Though we can't finish it, we're making the first step of showing this piece to people who can't see the work in the first place. We made a new version of the Victory Boogie Woogie for people with bad eye side or blindness. Trough touch you can feel our version of Mondriaans work. By touching the work, you expe-

rience the sound of the Boogie Woogie. The experience you would witness in the shapes and colors of the original work. And by doing so, the people around will witness the way you experience the new Victory Boogie Woogie. Everyone should be able to enjoy art. And we are proud to say, we made that small step to light up so many.





HHS / IDE  
DE HAAGSE  
HOGESCHOOL



TEACHER /  
SUPERVISOR  
HHS  
INDUSTRIAL DESIGN  
ENGINEERING  
JANNEKE  
SLUIJS

Our English based Industrial Design Engineering program at The Hague University of Applied Sciences teaches students to design solutions for today's and tomorrow's complex challenges. Trying to grasp and sense the complexity of these current and future challenges can be daunting. In the program we try to equip our students with methods that can help to make sense of possible futures. Parallel to this Victory Boogie Woogie project the students engaged in a project where they explore possible and relevant futures together with partner companies. The students are encouraged to use this experience and apply the same methods in the challenge of exploring the future of the Victory Boogie Woogie.

### **Collateral Value Art**

The project took place as an elective within a minor called Collateral Value. Students who participated in the Victory Boogie Woogie project were students from the first and second year. Collateral Value is a two year minor parallel to the program where students explore the extensive aspects of the professional discipline and where they develop the attitude of a reflective practitioner.

### **Process**

The students started off with an individual exploration in which they tried to

understand the work of art, the artist, the context and time in which it originated. This resulted in eight different collages and two questions prevailed: what is the role of art in the future? And how could art be experienced in the future? By exploring trends and developments they find drivers for change. For every development there are counter movements and the students are challenged to explore the extremes. Through combining the extremes of a societal and technological driver for change different future scenarios were created resulting in "Boogie Woogie Future Rhombuses".

The different scenarios are experienced with all senses and enriched through the participation of visitors.

### **Experiencing the project**

For the students as well as for us, the project was extracurricular. In practice this means that there are no scheduled classes so some dedication to the project was in order. Throughout the process the encounters with different institutes and its knowledgeable employees and enthusiastic students have proven to be worthwhile. These were the moments of full engagement and inspiration overflow that felt like treats.



# “The Victory Boogie Woogie Future Rhombuses”

## An installation made out of the future scenarios we created for this project

As Industrial Design Engineering students we are being taught how to create four or more future scenarios, keeping in mind the ongoing global trends, to predict a company's or a product's future success. In order to do that we need to draw two perpendicular axes that show two polar situations (for this project we drew: people care about art vs. people don't care about art and digital reality vs. physical reality). The future scenarios that we create out of those two axes were entirely based on our findings throughout our individual research.

While exploring the Victory Boogie Woogie we mainly focused our attention on who Mondriaan was as an artist and individual in order to understand his work as fully as possible. For the creation of the scenarios we worked in two groups so we could research on broader grounds

and different aspects of the future. One of the groups, with members Tsvetelina Obretenova, Lang Wang, and Fernanda De Aguiar, focused on what the role of art might be in the future. The team explored what the global trends nowadays are and what conclusions can be drawn from them, ending up with a concept that inspires a vision for the future role of art. The other group, with members Jojo Qian, Viktorija Piaulokaite, Mairya Golovanova, and Friederike Rümelin, was focused on how can art be experienced in the future. The team researched on how to make people more interested in arts, and how could museums be more attractive. As a focal point they decided to find ways on how the Victory Boogie Woogie painting could be presented in the future.

The Victory Boogie Woogie Future Rhombuses had two well illustrated and developed scenarios and the other two were left unfinished in order to invite people to co-create them with us and share their thoughts and opinions.

## Individual Exploration

Modern art could be tricky to explain to those who are not engaged in it naturally. Future technologies and trends could help with that. While exploring the Victory Boogie Woogie individually each of us fo-

cused on one of the aspects that people could be interested in in the future.

- historical and cultural context
- process of creation (the psychology of the artist)
- non-visual way to experience a painting (other senses)
- movement
- future visions of the world
- future societies
- modernday art

## The Future Scenarios

### Boredomville

The axis “people don't care about art” and “digital reality” created a scenario that we choose to call Boredomville. The environment is designed functional, there is no art, at least no decoration without a practical reason. All that is important to people is that things work the way they are supposed to work, no matter the place, device etc. Information is collected everywhere, so the environment can be individually adjusted to everyone's preference. Advertisements are everywhere. People enjoy all kinds of high-tech and enjoy simple entertainment. In order to make this scenario easier to understand we made a storyboard and invited people to think further about consequences and plausibility.

We got strong feedback on this scenario, “the world is not interesting anymore.” “Depressed humankind” “they need art!”, people actually got depressed by the idea of non-art in the word. Some people think it will never happen, they say “everyone is an artist, art is very personal”, “people want to express themselves”. “People like doing things with their hands”. “I think the world gets really boring, art will fill the flack for enjoyment”. There was one person who had a very interesting opinion “it will happen at one moment”.

### Coolopolis (“people care about art” and “digital reality”)

In this scenario we wanted to provoke the visitors of the exhibition to take part in our work and to relate to what scenario planning actually is. We came up with a character who we gave a minimal amount of information (His name is Bron, he is 31 years old and lives in Coolopolis, where people value art and their everyday reality includes digital world as an integral part of it, he lives in a small apartment with his wife. A few years ago, after his graduation, he started working in the field of ART...). The goal of doing that was to complete this scenario with the ideas and proposals of the exhibition visitors.

When we asked the exhibition visitors to further imagine this scenario, all of them created a vision of a perfect world. It



resembles the global situation nowadays but with the only difference that art is absolutely everywhere and all people love and are interested in it. This perfect world, according to the visitors, is very peaceful and idilic.

### **Funopholis (“physical reality” + “people care about art”)**

In this scenario the role of the art is very important. People care about art and want to see art works around them. They get inspiration from it that drives them for the new challenges in their lives. People protect art pieces by conserving and restoring them. Experiencing things in real life (as opposed to digital way) is a trend as well as gaming.

People can experience different aspects of an art piece: its cultural background, artist’s life, used technique or perceiving it as it is without any background information. As an example we proposed the way to experience art engaging all the senses, so that visitors could have a clear image of the future. As the base we made a collage using the same colors (blue, red, yellow, black and white) that Mondriaan used in the Victory Boogie Woogie. And we created a game out of it to enhance visitors’ imagination. Visitors had to guess the color using their senses but not seeing it.

Some of the associations were very vivid, so people could easily guess the colors. Yellow was immediately associated with sticky surface and red and blue were easier guessed because of the color of raspberries and blueberries. However, black and white were quite unexpected for the visitors.

One of the most interesting findings was the way people behaved with their eyes covered. Some of them were very stressed and couldn’t relax, while others were very open and ready for new experiences. This experience triggered people’s imagination preparing them for the next scenario.

### **Jungleville (“physical reality” + “people care about art”)**

In the second scenario people were invited to imagine the world in which people don’t care about art, but they were eager to experience the world around them engaging all the senses.

To make it easier we asked them 2 questions:

- How does the museum look like?
- What happened to Victory Boogie Woogie?

This is how people imagined life in Jungleville:

- How does the museum look like?
  - Grey and empty storage, or some other cold and lonely place
  - It is used for other purposes: (gym) nasium, castle for shelter and defense
  - An entertainment center with a lot of fun things: experience room (for all the five senses), relaxation area, dark room, combined visual+music experiences, moving games
- What happened to Victory Boogie Woogie?
  - It is treated like an IKEA poster: hangs on the wall in some private place
  - Used functionally as huge surface, for example - as a shelter against the sun
  - Cut into pieces and sold to some place where people still value art

- Burned
- Used as a basis for games to play and physical experiences. Imagine a room built like a huge Victory Boogie Woogie, where you can walk inside colors: feel, smell and touch them and have fun.

We never know what the future will look like and what it might bring us. Scenario planning is one of the best ways for predicting it. Even though the scenarios we created are very polar, they are possibilities for the future and we can end up living one of them or a mixture. Either way, at the end the future is in our hands!

Mairya, Viktorija, Tsvetelina, Lang, Jojo, Frederike & Fernanda







UVA  
UNIVERSITEIT  
VAN  
AMSTERDAM





# ASCHWIN MERKS

## Visualisation of paintlayers in a digital 3D-reproduction



Piet Mondrian, Victory Boogie Woogie, 1944, Gemeentemuseum Den Haag.

The Victory Boogie Woogie  
pulled apart

Aschwin Merks (UvA), afcmerks@gmail.com



Piet Mondrian op jonge leeftijd.

### Starting Point:

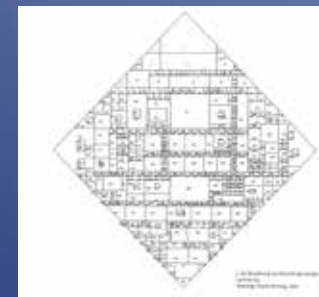
A study of the possibilities to develop a technique which makes it possible to visualise paintlayers in a digital 3-D environment.

### Results:

**Carta:** A Geographic Information System (GIS) used to documentate the different colored squares, the layering of that squares, and the relationships between that squares and the paintlayers in the Victory Boogie Woogie.

### Why is this important:

- It's arthistorically interesting to visualise, not only the last, but also the former stages in the creative process of a painter.
- It can be a usefull tool in education; it learns students more about the (studio)practise of painters.
- For museums: the technique can be a usefull tool to provide the visitor with more information, about the painting, and about research.



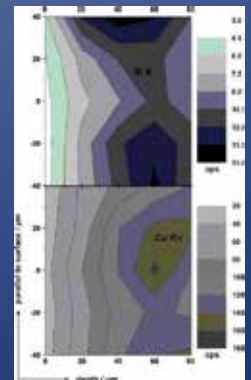
Carta: A Geographic Information System (GIS) used to documentate the different colored squares, the layering of that squares, and the relationships between that squares and the paintlayers in the Victory Boogie Woogie.



An X-ray CT scan of a painting, showing the internal structure of the paint layers.



Resulting elemental distribution of iron (Fe) in Rembrandt's 'Portrait of an old man' (ca. 1650), by XRF-scanning.



Contour plot of the resulting elemental distribution of iron (Fe) in Rembrandt's 'Portrait of an old man' (ca. 1650), by XRF-scanning. The colors of the contour plot represent the increasing fluorescence intensity in counts per second. Note the different intensity scales.

### Augmented Reality:

- Mixing of real and virtual images.
- Interactivity in 'real time'.
- It generates 3-D pictures.

### The future: (or utopia?)

A comprehensive scanning technique, which is combined with a full integrated method to visualise pictures in a 3D-environment.

# NIKITA GERRITSEN

## Non-invasive paint samples

### *The future or a utopia?*

Nikita Gerritsen (UvA)

#### Why is it so important to take paint samples from artworks?

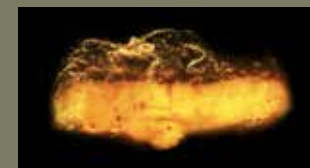
They visualise the paint layers, give insight in the subsurface of the artwork and they can help determine which pigments the artist used to create the end result on the surface.

#### Current method of sampling

An invasive method, where you cut a miniscule sample of paint out the artwork to put underneath a microscope. This is a non-ethical method, because it destroys a unique work of art. It's also uncontrollable: It's not possible to perform the exact same research on an artwork because you've already taken that piece of paint, and who is to say the place next to it will look exactly alike? And not in the least, there are research techniques which require the sample to be destroyed to gain information.



Crosssamples from art masterpieces moulded in high glass plates ready for investigation with electron X-ray. The historic paint tube at the bottom is from the personal collection of M. Cotte, artist I. Montero/CAIF.



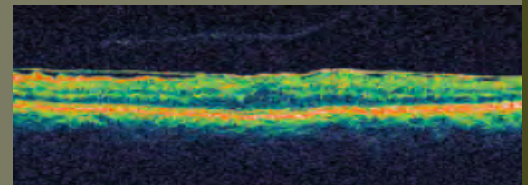
Optical microscope image of a microsample from *Flowers in a blue vase* by Vincent van Gogh, 1887. Credit G. Van der Snick/University of Antwerp.



Victory Boogie Woogie up-close.



Left: An OCT cross-section image of a painted panel of snail in linseed oil over a chalk layer. Right: the test panel and the position of where the scan was taken. Credit H. Liang.



Epiretinal membrane with loss of the foveal pit and irregular retinal contour. Credit S. Chen.

#### The solution: Digital samples

A non-invasive digital sample is an ethical solution because you don't destroy the artwork. It is controllable: you don't destroy the artwork so the research can be repeated the exact same way. And the sample can be reused without getting destroyed.

#### The future: Developing and combining techniques:

Possible techniques to combine for this research are: *Optical Coherence Tomography (OCT \*)*, *Confocal XRF (CXRF)*, *Confocal XRD (CXRD \*\*)*, *Fluorescence*, *Infrared (IR)*, *Near-infrared (NIRS)*, *Mid-Infrared (MIR)*.

\*: On-going research about the usability for digital samples

\*\*: Yet to be developed.

#### Non-invasive paint samples: The future.

#### Development so far:

OCT as one of the most important and potential techniques. It works with a Michelson Interferometer, using the NIRS-technique. At this moment it can create a paint sample in grey scale or in a non-realistic colour scheme.

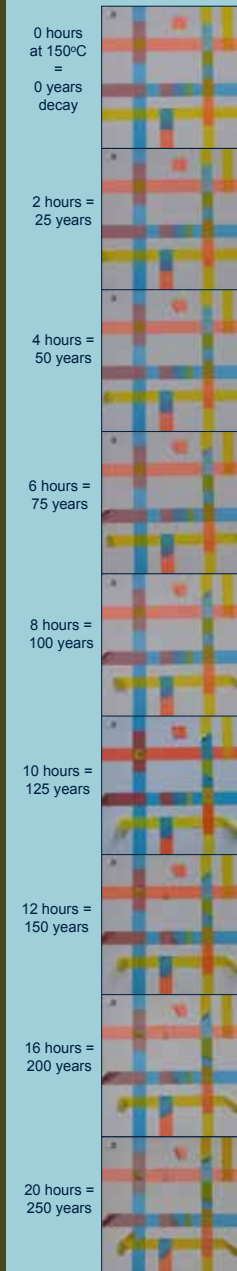
# MONIQUE STAAL

## FUTURE 3D IMAGE OF TAPE DECAY

### 3D Image as a Visual Tool for Discussions and Training

Monique Staal (UvA KG MA)

#### TAPE-DECAY-LINE



Tapes on *Victory Boogie Woogie*.

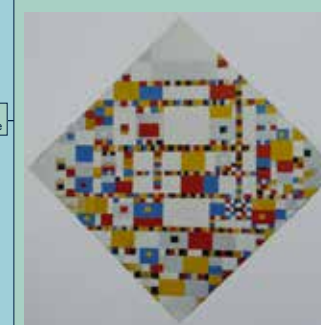
Art is subject to decay. To keep control on the degradation a lot of scientific research can be done. This might result in a huge amount of physical and chemical statistics. To get a better understanding of these data, a translation in a 3D image can be a useful tool for curators and conservators. In this way they will gain a better insight into the changes in external appearance of and internal processes in a work of art.

The evolutions in 3D scanning and printing promises a future in which all the scientific information of decay can be captured in just one 3D image at a certain time. A connection with artificial ageing makes it possible to create successive visual models of the decay throughout the years.



The degradation of tape.

#### CREATING A 3D TAPE-DECAY-LINE



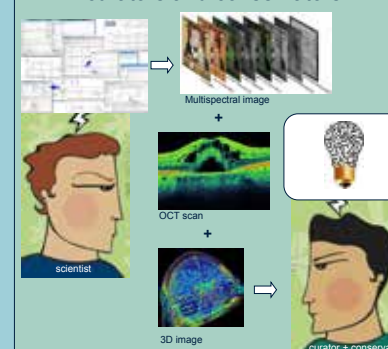
Piet Mondrian, *Victory Boogie Woogie*, 1942-1944. Oil, graphite, pieces of paper, card and tape on canvas, 127 x 127 cm. Gemeentemuseum Den Haag.

The future 3D image of the degradation of a work of art and the related scientific data is explored on the basis of Mondrian's *Victory Boogie Woogie*, especially its tapes. Mondrian used pieces of sellotape to develop this painting. The back of such a tape can deform or decompose, while its glue may dry and its colour change.

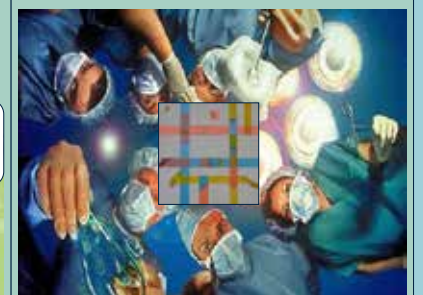
In what way and how soon tape decay will happen, is nowadays predicted by (invasive) artificial ageing. In the future this can be done by *Optical Coherence Tomography (OCT)* in combination with *Multispectral Imaging (MI)*. Both are non-invasive techniques. *OCT* captures micro 3D images of the inside of the tapes, while *MI* takes raking light, ultraviolet, infrared and X-ray photographs at one time. Linking them can deliver a 3D image with a total overview of the state of decay. By making time-lapse photographs in this way a timeline of tape decay can be obtained: a tape-decay-line. Comparing the actual condition of *Victory Boogie Woogie* with the results can place the painting on this timeline.

#### THE USE OF THE 3D IMAGE IN ART HISTORY

##### In discussions between scientists, curators and conservators



##### As a tool in the training of future conservators



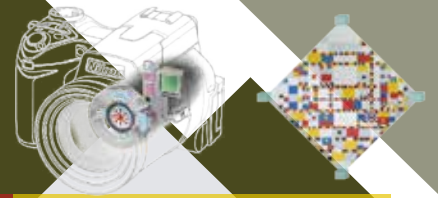
# MAREN TEMMINK

## Mondriaans Victory Boogie Woogie 'traveling' Physical vs. Virtual

The 'VWB' currently can't be transported. Can new techniques **enable an improvement** in art transport for paintings like the 'VBW'? Wouldn't it be great if, **in the future**, we can transport all kinds of art objects all around the world, no matter in **what condition** they are...

### Physical

- 'VBW' is a fragile painting. Conventional transport is too risky for the painting. Biggest risk: vibration.
- Adopt techniques from other industries can help to create a new and better kind of art transport.
- After a brainstorm with the other students at the 'RCE' in Amsterdam, we came up with the idea that transport of art could be based on the 'image stabilizing' technique in cameras. This is a technique based on a shifting lense with the use of sensors and electromagnets.
- This is exemplary in how we can derive knowledge from other industries in developing a new way of art transport or improve conventional transport.



### Reconsidering and alternative

The idea of enabling the 'VBW' to travel physically may be realistic in the future, but currently there is nothing developed yet. Are there any **already existing** techniques that are capable to let the 'VBW' travel in a safe way?

It isn't necessary to move the painting itself when you move it **virtually** from one place to another.



### Virtual


- Virtual Reality (VR) can transform a physical piece of art in a virtual one. 'VR' is an artificial environment created by computers, in which people can immerse themselves and interact. There are two types of 'VR': 1. Experiencing 'VR' by wearing a 'Head Mounted Display' (HDM). Or 2. 'VR' in a 'Cave' environment.
- 'VR' is a safe way of 'transporting' art because you save the original artwork from damage. Art becomes virtually transportable. Also, you can visualize more than the way the artwork is visible to us now, in it's finished stage. In the case of the 'VBW' you can visualize the previous stages of the work. This makes the 'VR' technique great for education in the museum. Museum visitors getting a sense of exploration during a visit.
- But there are some implications, for example:
  - Loss of the 'aura' of the 'original'.
  - A museum has a diverse group of visitors, it is difficult to create an experience 'that fits all'.



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CSI -VBW  
THE MOVIE  
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