

# **Final Paper**

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Major Studio 1

Fall 2017

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December 13, 2017

## I. Preface

### 1.1 Artist statement (myself as a designer)

With a background in German Language and Literature, I have always been interested in the way people communicate with each other as well as with our surroundings. One of the meaningful questions related to communication is how different factors, both external and internal, function together in this process.

We are living in a highly-updated world featuring in information explosion and exchange. It should be noticed that the way of communication has changed from face-to-face with languages as the media to face-screen-face, which means all kinds of screen-based digital devices have already taken the place of our oral language and play the intermediary role of communication. Given this context, we as designers should think about how to make all potential ways of communication in different contexts more intuitive as well as enjoyable with the help of modern technologies.

### 1.2 Analysis of current social context and the future of design

It's not an exaggeration to say that context is one of the vital premises, and arguably the first one, we as designers should consider as it shapes the meaning in all communication. In this case, labeling in what kind of epoch we humans are currently living in could be a generic guideline for all kinds of industrial practices.

Anthropocene, a recently proposed geologic time period as being human-influenced, is defined based on overwhelming global evidence that both Earth's geology and ecosystems are significantly altered by humans ([Welcome to the Anthropocene, Anthropocene.info](#)). Since the current condition we are living in is considered unpredictable and unsustainable, pursuing self-generative and sustainable approaches could be the goal of future design. As a designer interested in the topic of speculative design, what I am looking for is the way to change physical objects from being static and permanent to living and responsive. And I want to attach a special attention here to objects that carry a historical meaning with itself like traditional artworks. Although they were created by artists who lived a few of decades before us, those works are always there and should be explained from a new perspective.

### 1.3 My personal design manifesto (design goals and tentative interests in the field of design and technology)

What I have proposed in my design manifesto is that we need to create “memories” for alternative futures in order to unleash a wide range of possibilities into the present and make them conceivable, perceivable and eventually achievable. The core concept underlying my creating “memories” for the future means immersing people in a simulated future environment.

Besides, as a designer, I have always been interested in the relationship between our senses and cognition and believe in the power of collaboration between different senses to influence how our world is perceived, experienced and ultimately designed. From my point of view, there are still many possibilities for designers to explore in this field as the way we perceive everything is still relatively monotonous and passive.

## II. Problems

### 2.1 Observation: My personal experience and observation about the traditional way of visiting museums

The word “design” refers to a goal-orientated process which is intended to solve problems or improve situations in a critical as well as creative way (Friedman 509). Designers are also known as groups of talented minds full of inspiration. But good ideas are not something coming from the air but nourished by huge amounts of “inputs”. The way I personally prefer to accumulate my reservoir of ideas is visiting museums.

Museums have long been considered beacons of creative expression within their communities. Although the forms and topics of museums today are enriched to a great extent by virtue of numbers of emerging technologies, the way people currently visit museums or exhibitions for traditional artworks like oil paintings and sculptures is still relatively conventional and the heuristic influence left on them after visiting is restricted.

Based on my personal experience and observation, there are two major aspects of reasons leading to this issue. The first one is concerned with the physical arrangement of curation. For now, the introductory information will usually be printed out in static words on small cards hanging on the wall next to the paintings. However, while mainly attracted by the content of painting, most visitors don’t have the patience or even chances to read the whole texts and understand them fully when there are groups of people gathering in front of one masterpiece.

Another point about this traditional visiting way is that we still largely depend on our visual senses in this process without the participation of other senses. Although many museums nowadays have been equipped with audio guides that help with the navigation and explanation, there is still a disconnection between what we see and what we hear. What if we could hear the combination of lights and shadows? What if we could taste the different patterns and colors? Would the involvement of others senses change our perception and cognition holistically? Indeed, many amazing projects involving the interplay of different senses have been conducted in recent years in different artistic fields, but traditional art museums still appear to be a new niche full of possibilities.

## 2.2 Research: Conclusions from industrial practices and research

### 2.2.1 Adopting technology as a major trend in the museum industry

Over the last few years, museums have become more digital-friendly and more integrated with emerging technologies that enable museums to add new dimensions to what artists are capable of creating as well as foster more interactive experiences by displaying artworks in more innovative ways. According to “The NMC Horizon Report: 2015 Museum Edition”, the research behind which is jointly conducted by the New Media Consortium (NMC) and Balboa Park Online Collaborative (BPOC), there are several key trends accelerating technology adoption in museums (Johnson et al. 3). Not only participation of private companies but also cross-institution collaboration is encouraged to get involvement. Guided by the core value of building more engaging and personalized visiting experience, it is not an exaggeration to say that driving technology adoption is a trend that only continues to grow in importance in the next few decades.

### 2.2.2 Challenges for interactive installations in museums

Among all kinds of digital media that applied nowadays to augment museum spaces, interactive exhibits and installations show a great potential in creating engaging experience involving a diversity of visitors across ages and interest groups. However, there still exist several significant challenges when it comes to interaction design for museums.

First of all, the adoption of technology could be restricted by the specific context of a museum. According to researchers from University of Aarhus, “it is generally a challenge to introduce technology in art museums without disturbing the domain of the

art works”, which is different from the situations in cultural heritage and natural science museums (Kortbek and Grønbæk 229). Interactive installations based on technologies like tangible user interface (TUI) or virtual reality (VR) are feasible in these types of museums because the interaction is designed at the service of providing appealing and efficient learning experiences within the fields of culture, history or sciences. However, while the artworks themselves in art museums constitute the primary communication between visitors, few room is left for technologies to reconstruct this pure and unique experience.

Another challenge mentioned in “The NMC Horizon Report: 2015 Museum Edition” is “balancing our connected and unconnected lives” (Johnson et al. 3). With a long tradition of a reflective atmosphere, museums are inherently considered as ambience allowing of deep contemplation and free exploration. It should be difficult for technologies to seamlessly integrated in the holistic environment while at the same time avoiding distractive effects exerted on visitors’ cognitive function. A further concerned problem in this case could be the evaluation system. As many participatory projects are experimental, designers in this case should think about the criteria used to measure the effectiveness and enjoyment invoked by a certain type of technology incorporation for the next stage of iteration.

### 2.3 Design questions

Generally speaking, this paper outlines a project aiming to explore the possibilities of a new way of communication or relationship between people and physical objects by changing the way we perceive them. A more specific design question in the context of museums could be what should be changed if we want to make artworks more accessible for the public and revitalize their aesthetic values with the help of modern technology in today’s life?

## III. Solution

### 3.1 Objective: What am I exploring and what do I want to solve

While many museums have already increased their focuses on creating participatory experience in this ever-changing digital landscape, there is still much room for discussion about how to incorporate all potential elements introduced by technologies together in order to strengthen the educational engagement in visiting.

In this project, I am experimenting with different techniques like Arduino, Processing and Computer Vision. I want to create an interactive installation for traditional artworks in museums in order to build new forms of communications between visitors and artworks. With focuses on both participation and education, this project is aiming to provide more opportunities for visitors to explore artworks by themselves instead of mere passive reception.

### 3.2 Practices of communities based on different media

After I finalized my objective, I set out to search for precedents in order to learn about what is going on in the industry. Guided by the instructions from the book “The Craft of Research” I narrowed down my projects’ domains to several specific key words and found some really inspiring examples (Booth 35-38). In the following chapters, I will introduce some of them and discuss their highlights and impacts respectively.

#### 3.2.1 “Loving Vincent”

“Loving Vincent” is known as the world’s first fully painted feature film which was made based on Vincent van Gogh’s oil paintings. As the medium is changed from paper to film, more senses have the chances to get involved in the communication and the paintings become “alive”. Besides, as a series of footages are connected to create a film, a new story begins.

#### 3.2.2 “The Process of Fresco Painting”

“The Process of Fresco Painting” is one of the three interactive installations designed by a digital design agency named YOKE for The Skovgaard Museum which “tells the story of Joakim Skovgaard’s comprehensive fresco decoration of Viborg Cathedral” (YOKE, *yoke.dk*). The installation called “The Process of Fresco Painting” enable visitors to use an ordinary brush and digitally paint on the wall. Through this kind of experience, visitors are expected to know more about painting after fresco technique (Figure 1).

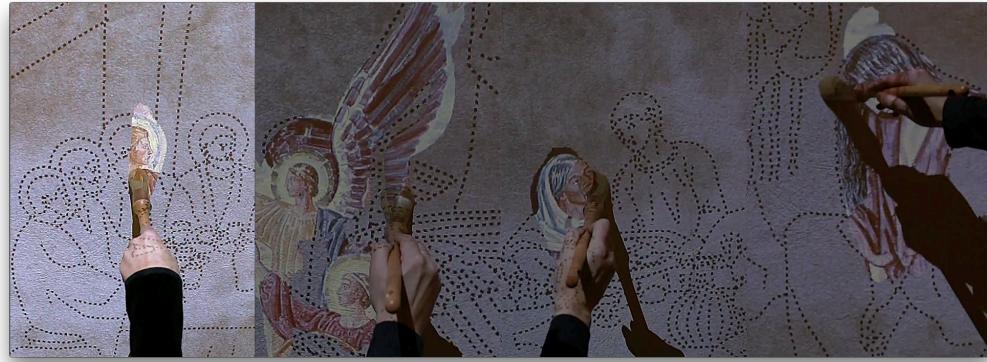


Figure 1. "The Process of Fresco Painting" - visitors are using ordinary brushes to paint on the wall. Taken from: <https://www.yoke.dk/project/skovgaard>.

### 3.2.3 Works of Camille Utterback

The works of Camille Utterback who is a pioneer in the field of digital and interactive art also inspired me a lot. There is an interactive installation called *Entangled* created by Utterback in 2015 for The Contemporary Jewish Museum in San Francisco. In this project, participants can interact with imagery projected onto two sides of a set of translucent scrims (Figure 2). As the movements of participants will be traced, different patterns can be created or moved around accordingly. According to Utterback, “the title of the work, *Entangled*, refers to the merging of participant’s physical traces on scrims in the installation, and also our ongoing emotional entanglement with digital systems in our lived environment” (Camille Utterback, *Camilleutterback.com*).



Figure 2. "Entangled". Photo by Johnna Arnold. Taken from: <http://camilleutterback.com/projects/entangled/>.

### 3.3 Iteration of prototypes: several potential ways to implement my concept and their respective strengths and constraints

As the first step, I divided the interaction into two parts – Dynamic Generation and Interactive Storytelling – according to the general visiting process. The first part combines two steps as visitors are getting close to the paintings and moving away afterwards, and painting will be generated differently according to the distance. The second part lasts as long as visitors are standing exactly in front of the painting while conversations about the story in the painting will be triggered based on their movements.

For the first part, I made three different ways of generation in Processing and conducted users test in order to find the one with the best effects. Specifically, three different properties of the painting – scale, resolution and color – will get changed according to the distance between visitors and the painting. Instead of using Arduino and Ultrasonic Sensor, I chose Computer Vision equipped with an external camera to detect the position of visitors, which appeared to be more controllable and accurate. And for the Interactive Storytelling, I chose the painting “The Last Supper” with a specific historical story behind it and made different conversations be triggered as visitors are looking at different figures in the painting. The conversations are selected originally from the Bible and the background music is from a sound track used in a film about “The Last Supper”.

## IV. Reflection

As far as I am considered, this project is more experimental than practical. As the designer, I don't expect this kind of installation will replace artworks we now have in museums. Based on the final outcome, the meaning of my project lies in finding more possibilities of interaction in traditional artworks from an educational perspective. For the further steps, there are several ways to improve the last version of my installation concerning the storytelling part, such as incorporating more senses or extending the context from screen-based 2D to 3D. In conclusion, museums as a both personal and collective context is worthy of further exploration and curators and designers should work together to discover more possibilities.

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