



# Beyond the Boundary

MFA Thesis Exhibition



Lan Wang

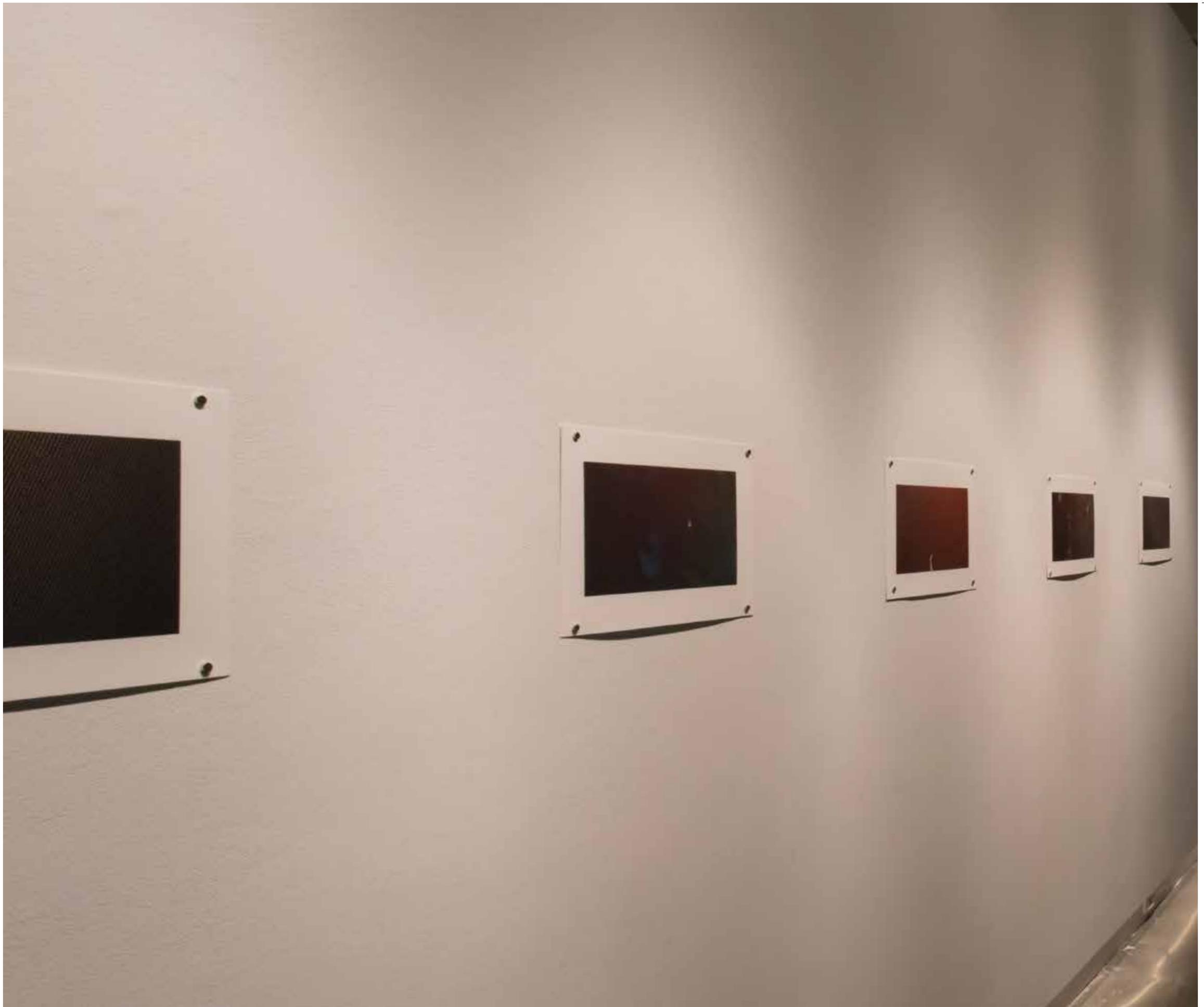


2019 Electronic Integrated Art MFA thesis exhibition  
Expanded Media, School of Art and Design, NYSCC at Alfred University  
Committee Barbara Lattanzi - chair, Xiaowen Chen and Andrew Deutsch

Turner Gallery, New York State Ceramic College at Alfred University



ROBERT C. TURNER GALLERY





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# Introduction

After much thinking, I finally decided to name this exhibition “Beyond the Boundary”. All these works are explorations about the invisible, blurred boundary of our real world. Using the word “boundary” is strange, because the cosmos we live in is infinite, and no one can tell if the cosmos has a boundary. The cosmos is a good metaphor for our new relationship to the Internet. If this boundary does exist, it will not exist in the real world, but in the human mind and cognition.

Since the 1960s, the Internet has reached the whole world. The idea of cyberspace has evolved to become a significant term that describes people’s many different experiences of the Internet. Cyberspaces continue to incorporate many complexities of our daily life as we interact with the technologies. At first, people could still tell there is a line between the real world and cyberspace, but the field of cyberspace suddenly expanded and even merged with our daily life. So many people pour emotions and energy into their virtual identities in cyberspace, an invisible new world emerges. That’s how we create a world--a virtual world that consists of cyberspace and human cognition. With that idea in mind, a few questions are generated in my head--Is there still a clear boundary between the virtual world and the real world that we can see? Can our real world be virtualized? Can the virtual world get materialized?



Since humans stepped into the digital age, there is a chance to now dive into oceans of information, or even to get a second life with a virtual entity. The overlapping worlds—the real world and the digital world—are sometimes too hard to distinguish, and both of them seem as if they are both learning from each other. Although digital avatars and data represent our existences nowadays, we still cannot touch the virtual world with our hand. However, by designing some specific occasion, we can try to explore the boundary, and this experience should provide some feedback, as if we are using radar to delineate the edge of that shapeless virtual world.

What might we get from wandering around the boundary?

- Virtual inside of reality
- Reality inside of virtual
- Virtual mixed with reality
- Virtual seen from reality
- Reality from virtual

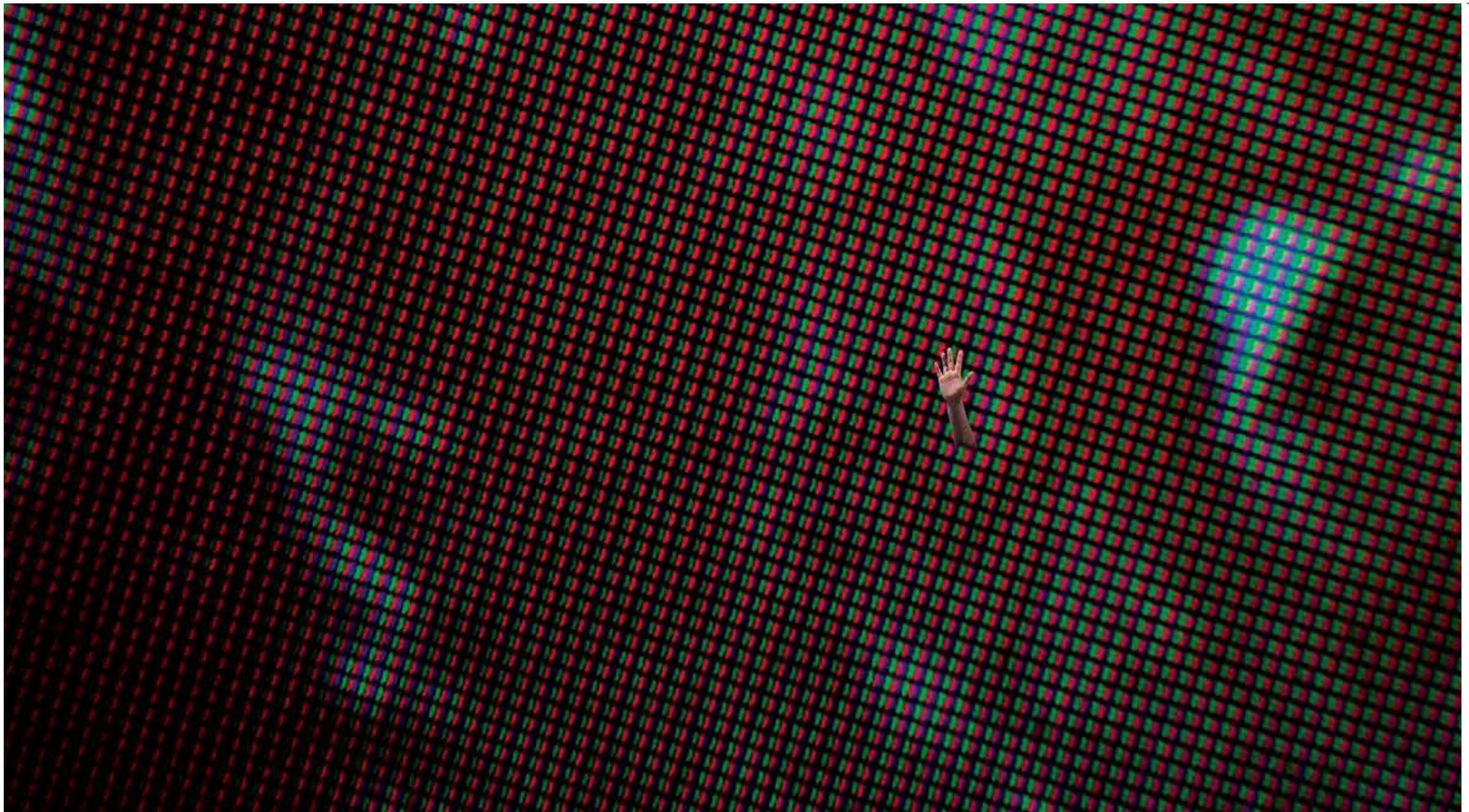
The famous Magdeburg experiment is a delightful glimpse at the hidden and powerful atmospheric forces that are with us at all times. With the same theory, “Beyond the Boundary” is an attempt to detect the hidden effect and boundary of that virtual cyberspace, just like the Magdeburg experiment. Another comparison is when writing on a notebook, it will leave indentations on the next page, and you can only see them when you smear the next page with a pencil.



In 1657, in front of the Imperial Diet in Magdeburg, Otto von Guericke set up a famous and spectacular experiment witnessed by vast crowds of local residents. Von Guericke used two perfectly matching hollow bronze half-spheres measuring about 50 centimeters in diameter. He fastened them together tightly to form a sphere. Using an air pump, he extracted the air from the sphere through a valve. When he had created the vacuum and removed the external connectors between the two hemispheres, von Guericke was able to show to the astonished spectators that two teams of eight horses pulling in opposite directions barely sufficed to separate the two emptied hemispheres. This experiment demonstrated the force of atmospheric pressure when it is not offset by the internal pressure of the hemispheres.<sup>[1]</sup>

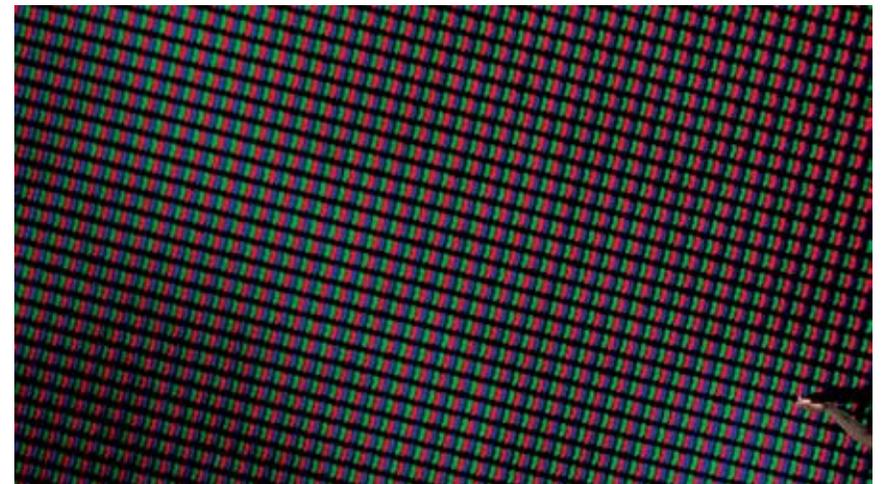
In my process, I selected a few topics and designed some “experiments”, trying to put not only audiences but also myself into this particular occasion. With the experiences of being involved in the experimental space, I hope to provide audiences a chance to capture the unspeakable feeling of virtual existence.

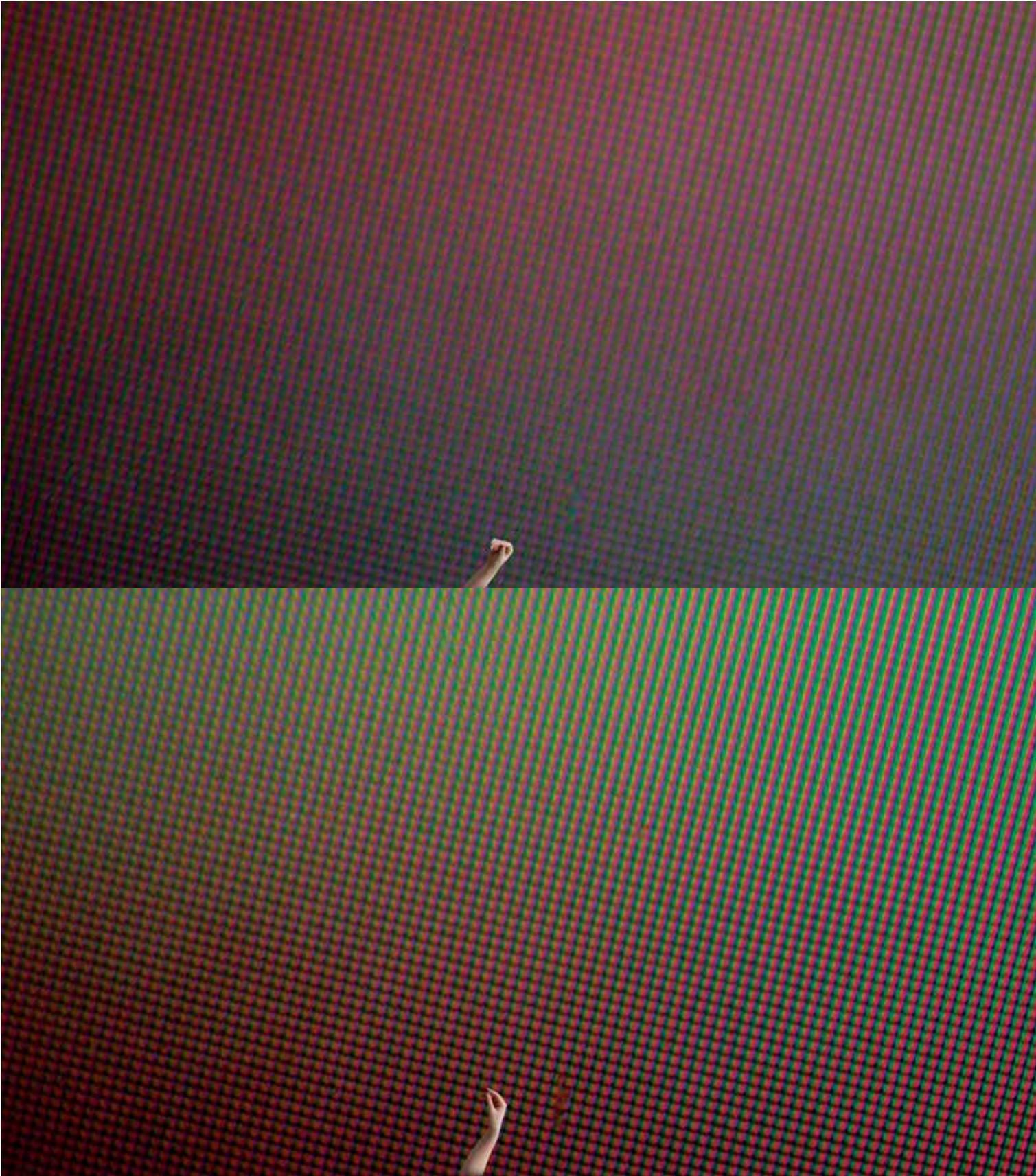
[1] “Magdeburg hemispheres”. Multimedia Catalogue. Institute and Museum of the History of Science, Florence, Italy. 2006.



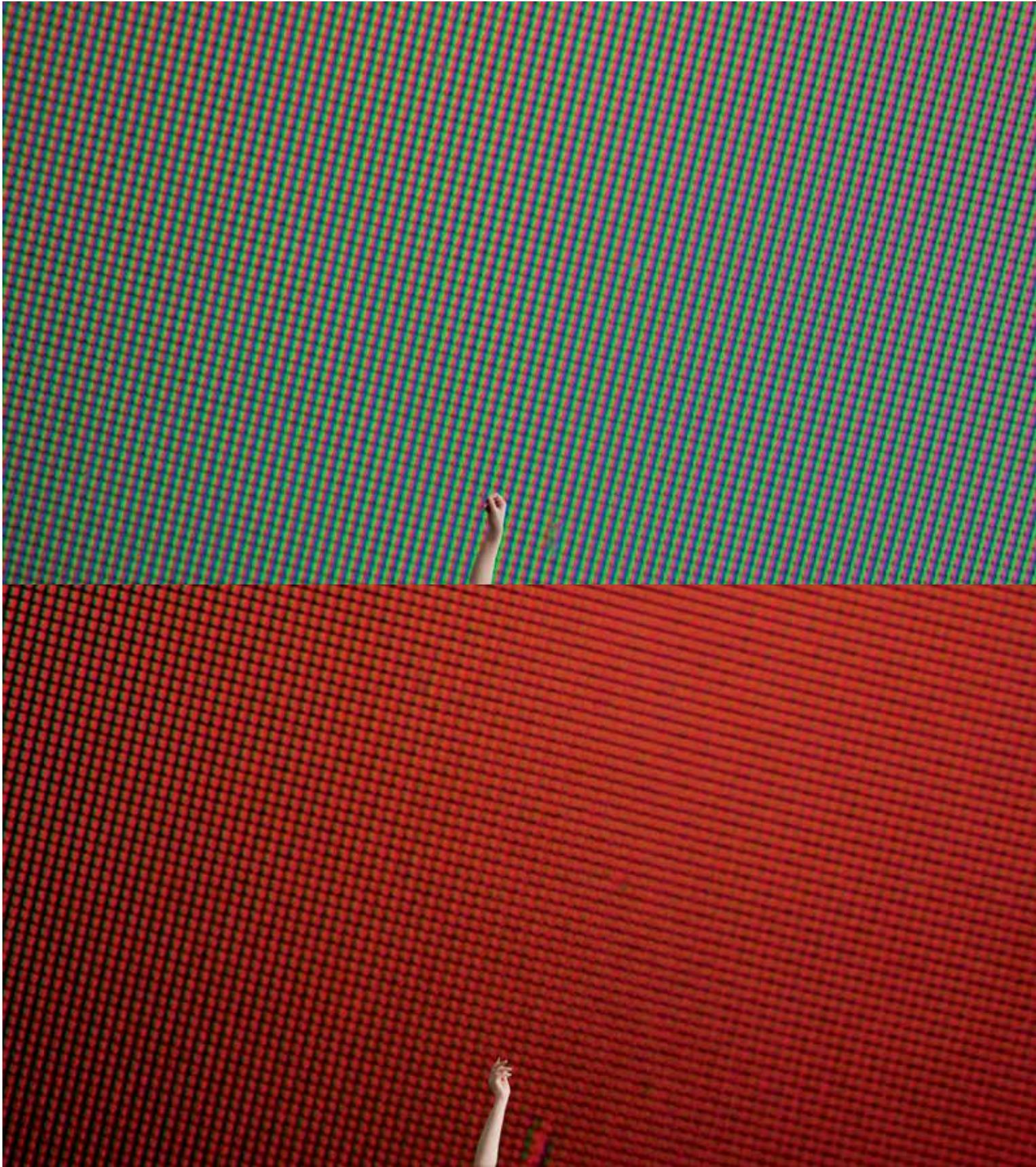
Micro-body  
Videos and digital prints  
2019

This series of works includes 21 digital prints and 3 videos. A digital print with PhotoTex paper was set up at the entrance to the gallery second floor. When viewers walk to the mezzanine, they see the entire wall covered with prints. 3D glasses located on a pedestal at the entrance of mezzanine were available for audiences to view prints.





In *Micro-Body*, I used a microscope to observe screens of cellphones to bring us a more detailed, intuitional view of the digital world. The video is divided into millions of parts, consisting of different RGB signals, and made visible with screen phosphors. This structure is just like human DNA which consists of 5 types of nucleobases. On the microscopic level, the encoding of electronic images and DNA makes a bridge between electronic virtual beings and living beings. We can see the coincidental consistency of them.



Since society has been analyzed and transformed into data, our identity is more like a data model based on personal information rather than our proof of life—the physical body. After all, in the digital world, the only way to distinguish ourselves with others is the ID numbers we have received. But what if we tear our body into pieces of information, and observe those “body data” in the real world? By this means, a part of the body would be transcoded into signals that could only be understood by computers. Humans always use eyes to understand the unknown first. That is why I chose a microscope to observe these digital quanta of “body data”.



*Micro-body*  
HD Video by Microscope  
1920 x 1080  
12/2018

Using a microscope to observe an LED screen provides a lot of fantastic images. When I look through the microscope, I imagined myself as a camera on the satellite that is trying to collect information and data from a mysterious planet. With that intention in my mind, I took some microscope photographs of my fingers. These photos are mainly focused on my fingerprints, which are widely considered as an important process of identity definition. These thin and strange spiraling lines are unique to every human, and we are defined as these patterns in the information system.



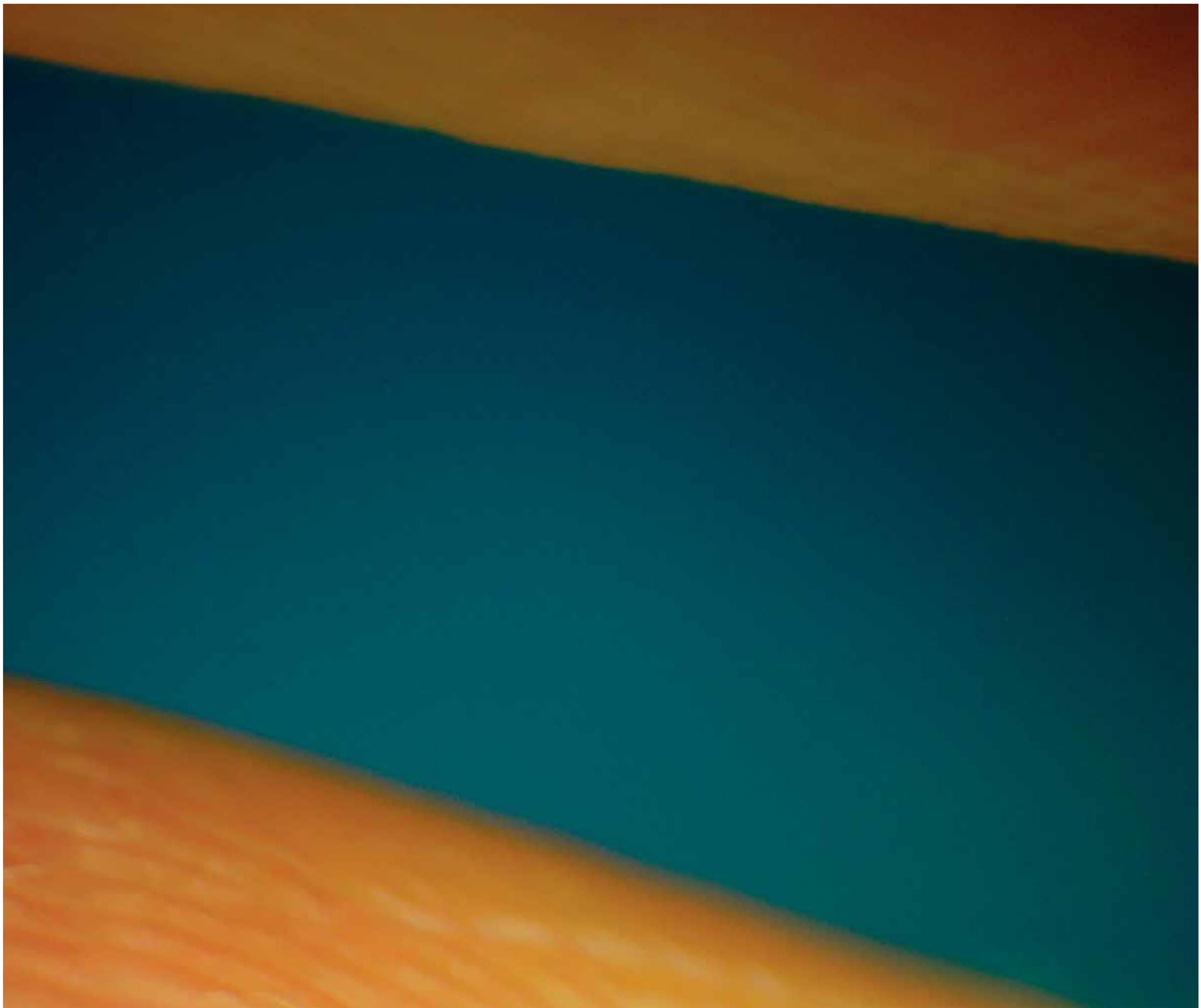
*Body-data*

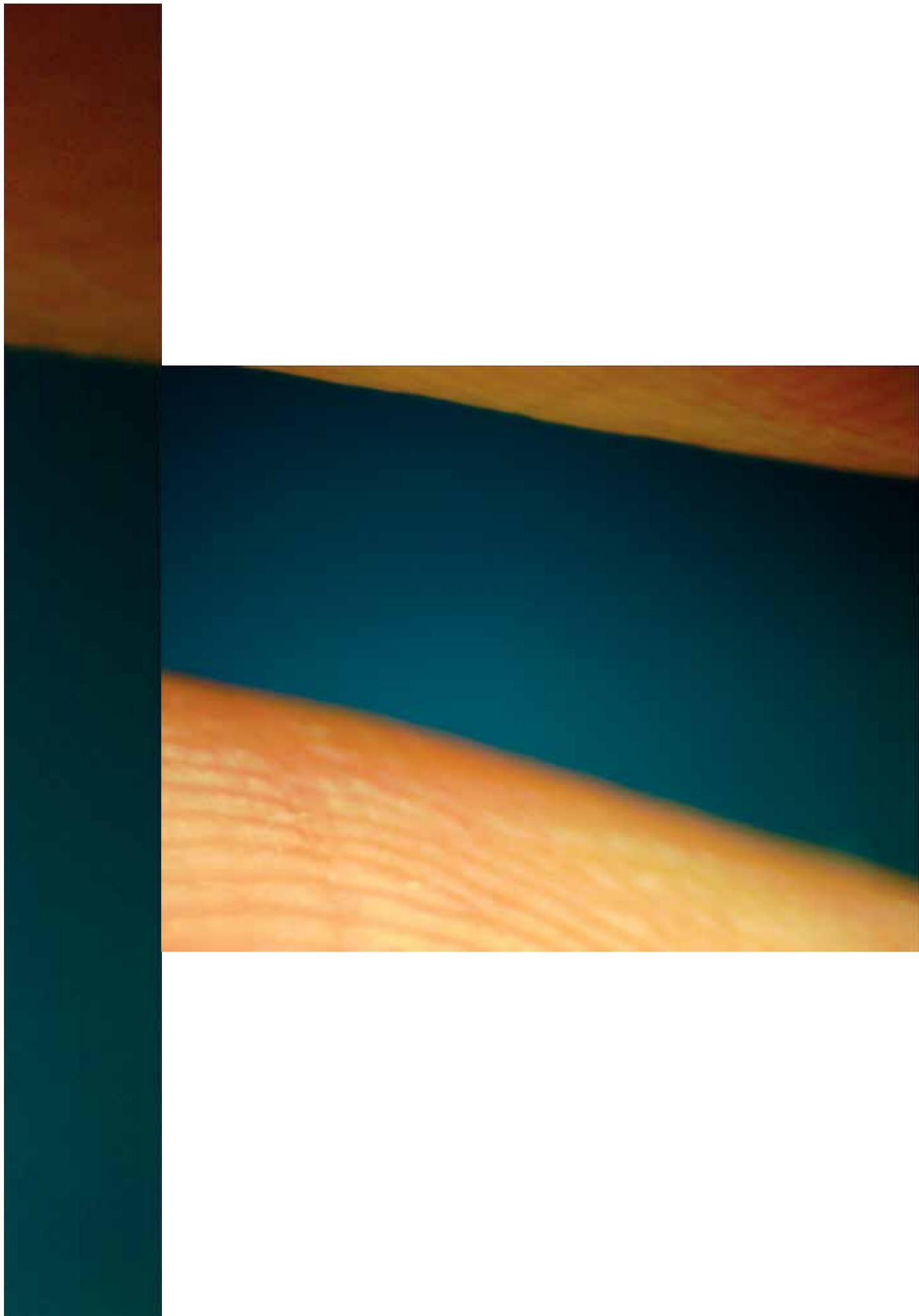
16 inch x 12 inch

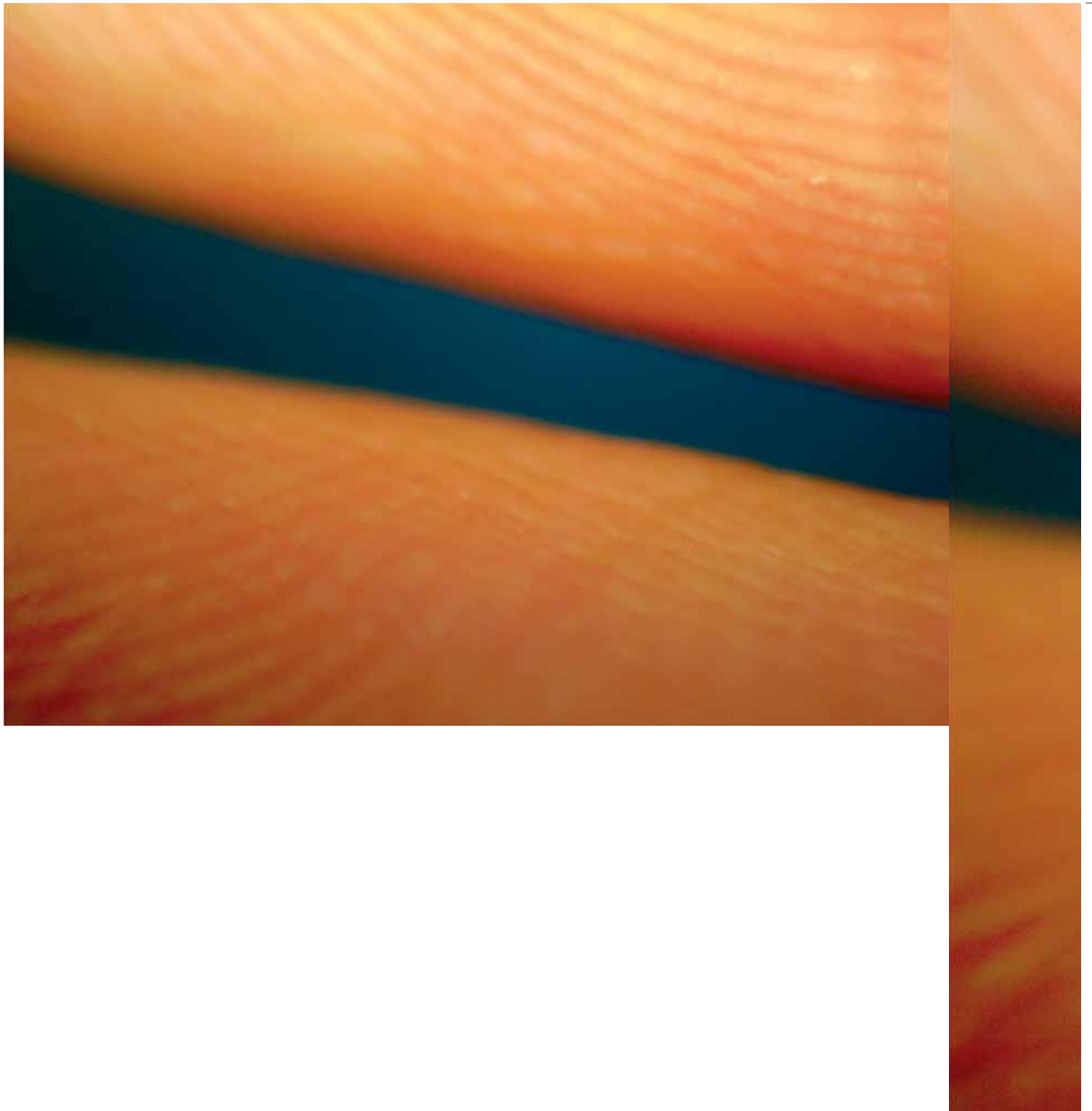
4/2019

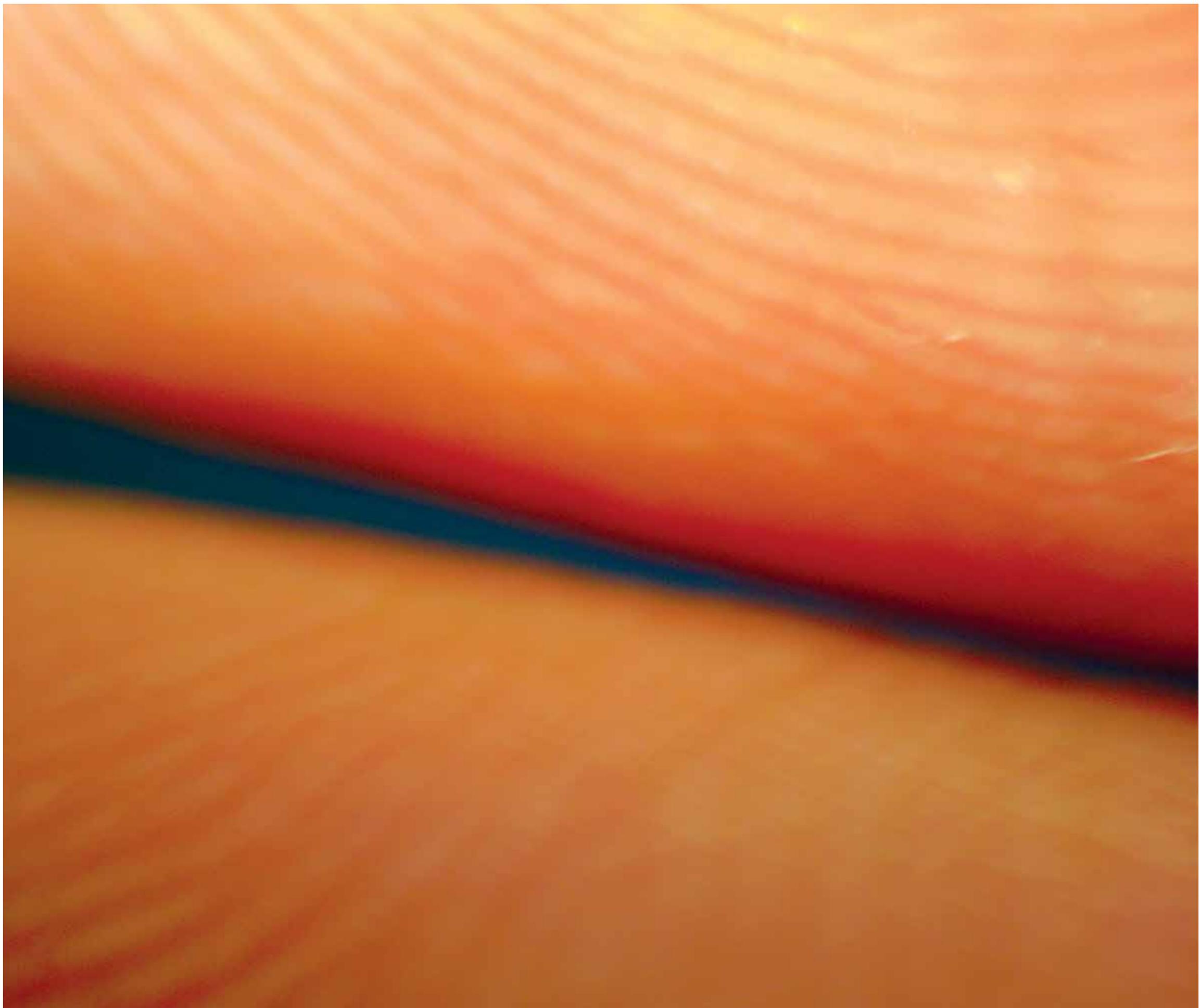
Digital Prints on Watercolor Paper

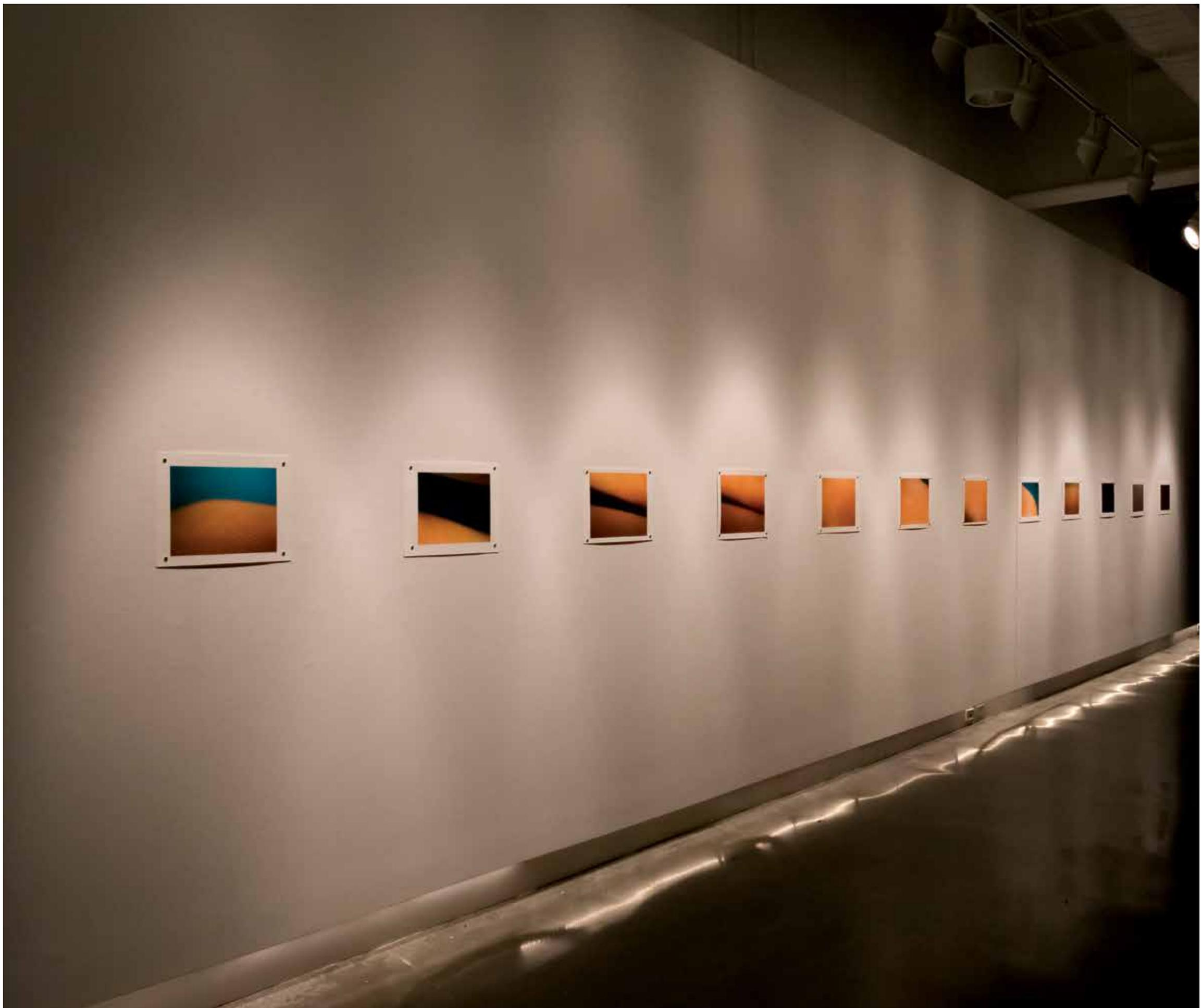
Then, can I consider images of my fingerprints as a kind of data visualization? Data is too abstract for the human to comprehend but it is also the only thing machines could understand. That is why people invented data visualization: the human need to understand things visually. Follow this clue, we can even imagine every digital picture as an entity that is both a data visualized image and an aggregate of data.

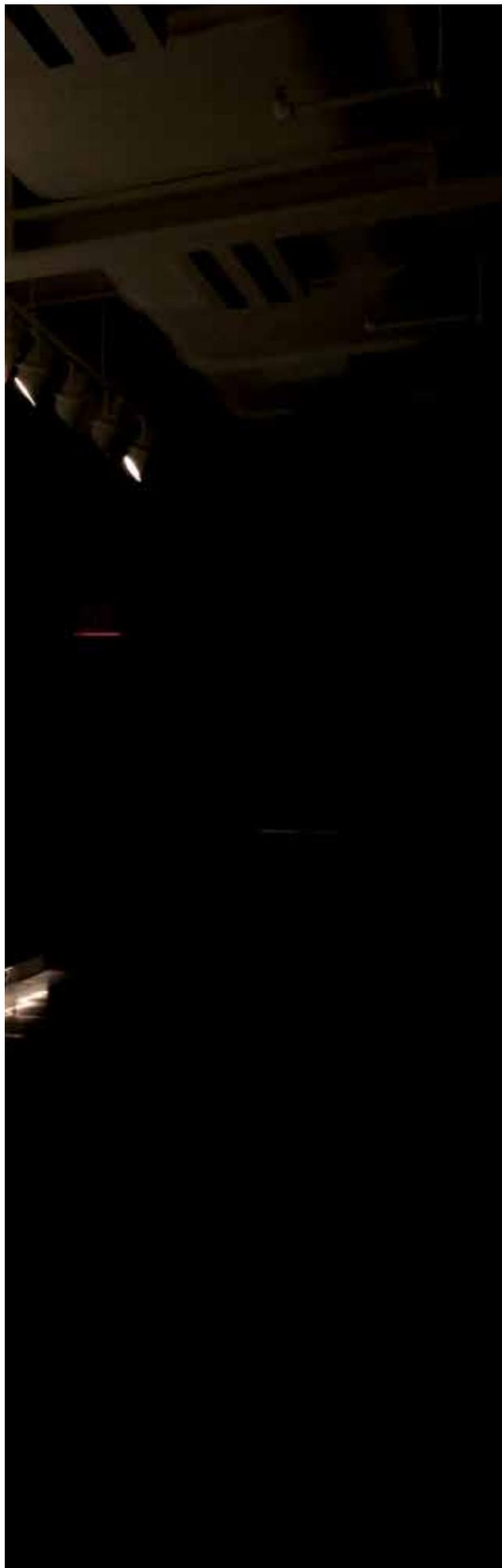








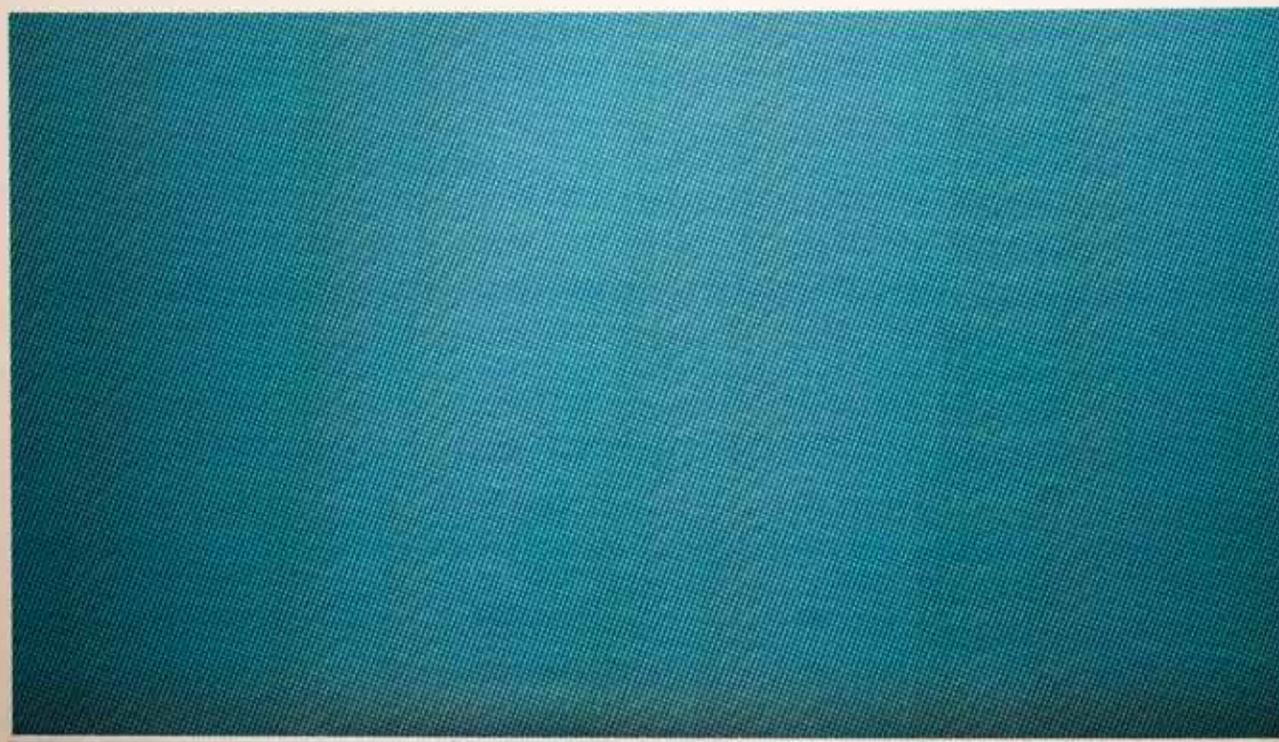




After I came to this interesting conclusion, an idea came into my mind: what if I deconstruct images of my body as identity data with a microscope? I digitalized something that represents myself, and put my fingerprints under the microscope to analyze them, just like analyzing my own genes. Then RGB signals just become “nucleobases” in the cyber world, and I become reborn in the world inside of these screens. The idea of digital rebirth pushes me to start to explore this beautiful, detailed microworld.



The process of diving into the microworld is amazing, but it could be hard to record. The microscope I used cannot offer some high-resolution videos with fluent frame rates. The microscope is not designed for making movies. For example, the zooming shots took me a long time to prepare. But these zooming shots are essential for this project. When I first zoomed into images under the microscope lens, I felt as if I was falling to a strange planet from the deep space. I got some fingerprint photographs as a result, but that incredible scenery of the zooming process could never be shown because of the limitation of the microscope.



Zoom  
42 inch x 24 inch  
4/2019

*Zoom*

42 inch x 24 inch

4/2019

Digital Prints on PhotoTex Paper

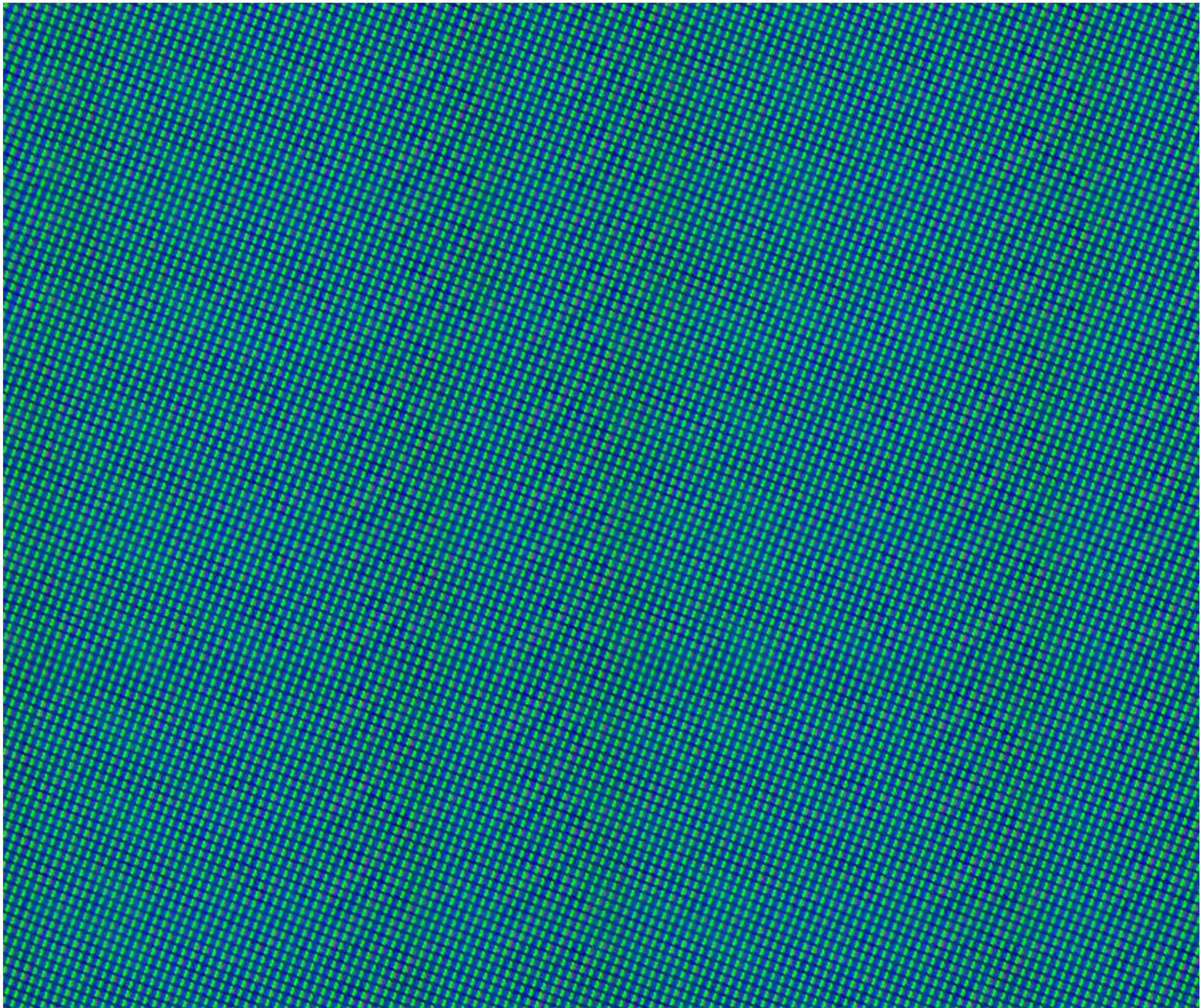
Instead, I made a 42-inch print of the screen image. The print was set up at the entrance of second-floor mezanine of the gallery. At the same moment when audiences walk out of the stairway, they see this large print immediately. Rather than moving the microscope lens, viewers see the pattern getting larger by walking close to it, in other words, viewers' movements functions as the zoom of the microscope. The corridor between the print and the stairway then becomes a passage, a link to zooming into images using the microscope lens.

*Zoom*

42 inch x 24 inch

4/2019

Digital Prints on PhotoTex Paper





*Jack and the Beanstalk*  
Artist Video Game with Video Mixer  
(with video documentation)

*Jack and the Beanstalk* is a game project developed with Unity 3D and a video mixer. The whole game consists of two parts, one part appears on the computer, and the other part happens in the real space of the gallery. Two gamers play the original video game on Macs, and two channels of gaming display are mixed with the video mixer. The player who plays the video mixer controls the view of other players, providing this game an outside layer in reality.

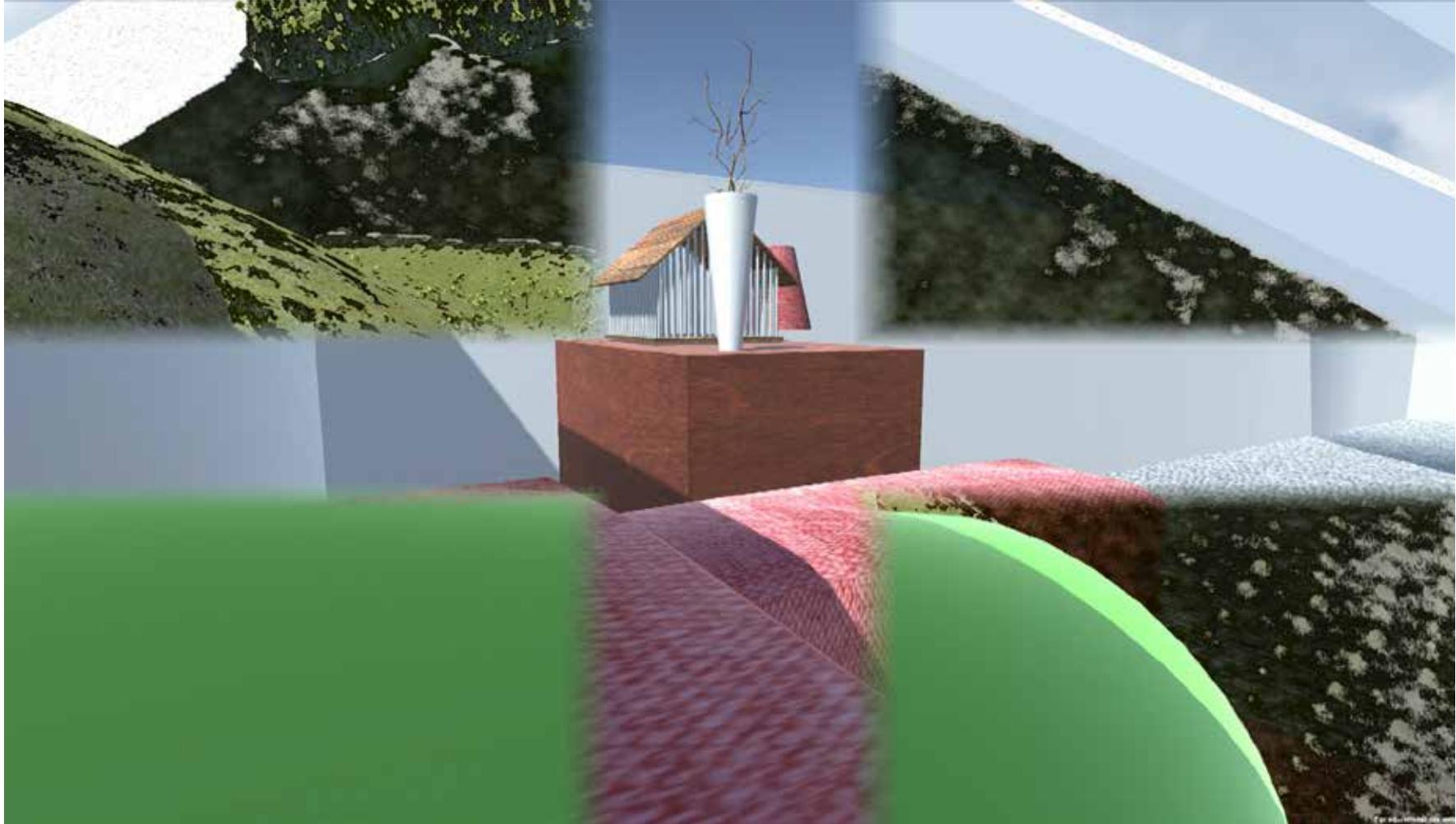


The exhibition space is divided into two parts: two players sit together, using keyboards and mouse to play this game. One player keeps watching the game scene, in order to mix the two player visions. Each game player's concentration is interrupted by the video mixer.

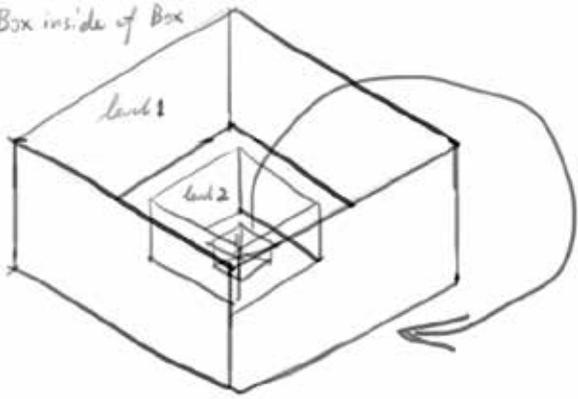


I plant a virtual beanstalk in the gallery, and gallery visitors join in, improvise with each other, and try to explore this place with their memory of the original story “Jack and the Beanstalk”. The one who plays mixer is playing the role of giant and trying to interrupt other players. The participant at the mixer is a giant standing outside of this game world. The relationship between each participant is changing, because this is a game in which the player plays other players.





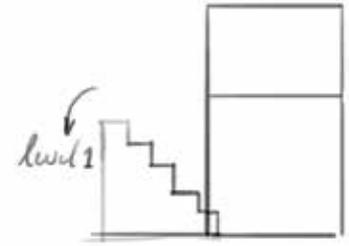
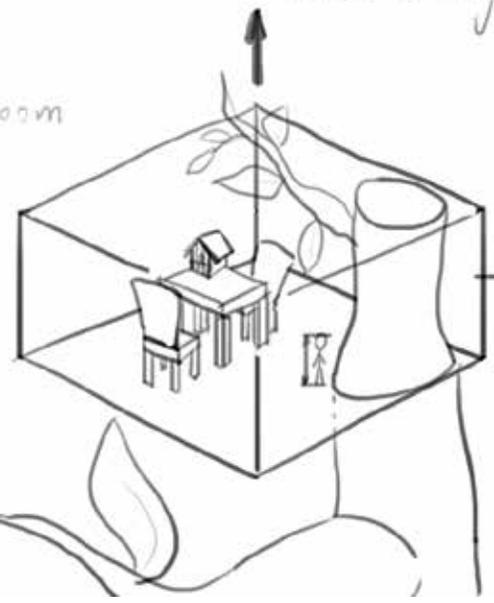
Structure:  
Box inside of Box



→ level 2 room



level 3 cage



- All of the walls are destructable.
- if they jump through the border, players would return to the place they landed

Instead of watching the video or just playing the game itself, audiences are involved in this project directly, and a complicated connection can happen between them during their playing. The player who is playing the mixer could choose to collaborate with one player or just interrupt them. This participation allows the artist to step back and become an observer in this space. Players start playing this game without instructions except for their memories of the fairytale “Jack and the Beanstalk.” They need to follow their memories of the original story and try to explore this virtual space. This process of “exploring with interruption” is the same with what Jack has been through in the fairytale. Interpreted from this perspective, the mixer player is playing the role of the giant, and standing in a higher dimension. The structure of the exhibition space is just like two boxes nested inside each other and entangled with a spiral narrative.



Video mixer technology is involved in this game, not only as a controller device, but also as a puzzle that players who have no idea what mixer does have to figure out. Players try to follow the simple instructions on this machine, and explore it like playing with toys. However, the process of their playing inevitably causes trouble for the other two players who are separately acting as Jack. Compared to other controllers that are custom-designed for playing games, the video mixer is definitely a huge, complex one and hard to use. That complexity makes the physical part of this game happen with more physical movements (pushing buttons, pulling and pushing the video wipe handle, etc).

My inspiration for the use of video mixer is from the media artist, Allen Riley, and his work *videofreak*.

Would you spend the whole day on social media?

Yes

No

Trust me, you would:)



*Like-like*

Mouse Driven Artist Video Game

4/2018



*Like-like* is a game project developed with Unity 3D. The game process simulates a person who will spend all day on social media and try clicking likes to attract attention. There are two modes of game: one mode makes players scroll these tweets very fast to the point that it is hard to keep up, and the other one allows players to click as much as possible with a timer.



Like Like

@A\_Like\_like\_man

42 正在关注 30 关注者

个人资料

列表

瞬间

设置和隐私

帮助中心



AT&T



主页



ABC News @ABC · 5时

Pres. Trump says Democrats not applauding at the State of the Union were "un-American...can we call that treason? Why not." [abcn.ws/2hFejwL](http://abcn.ws/2hFejwL)



889 179 336



【公式】 Fate/Grand Order · 2时

【カルデア広報局より】

2018年3月17日(土)に東京・お台場で開催される「hokusai&TOKYO 水辺を彩る江戸祭」のウォータープロジェクトマッピングと「Fate/Grand Order」のコラボレーションが決定! 詳しくは  
→[news.fate-go.jp/2018/0206ubdba/](http://news.fate-go.jp/2018/0206ubdba/)  
#FGO





I spend a lot of time on social media every day, and it already has become a social phenomenon in China. Everyone relies on social media to connect to someone else, but this kind of emotional connection seems more fragile and unstable than traditional forms of connection. And the way people use to get attention and feedback is weirder than before. For example, many of us would click “like” button on social media to make some response to our friends. It has a lot of meanings, but it is a mystery for me, because I don’t exactly know what they are thinking about when they clicked this “like.”

Would you spend the whole day on social media?

Yes

Then how about try something faster?

No





I have seen some people recognize these “likes” as a friendly signal they want to transfer to some particular person. And some people click every “like” they can see. They do not care what this twitter is talking about, they “like” everything. I am quite interested in why they want to do this. Are they trying to show their presence, prove that they have checked your messages, or do they want others to get annoyed by a long list of notification from apps? Many theories try to explain this phenomenon, but none of these feel correct.



**Like Like**

@A\_Like\_like\_man

47 正在关注    30 关注者

个人资料

列表

瞬间

设置和隐私

帮助中心



主页



251    2797    2205



**CNN** @CNN · 1时

CNN legal analyst Jeffrey Toobin: Trump "has violated so many norms of behavior, in terms of how we expect public officials, not just presidents of the United States, how to behave. ... It is so appalling but I think we've all developed antibodies" against the rhetoric



0:38 6.3万次查看

377    396    1129



**ABC News** @ABC · 4时

LIVE NOW: @ABC News Special Report: Dow down more than 1,000 points.





I tend to think they are using like-clicking to attract attention and maintain a relationship, but sometimes it is very annoying in the end. In the project *Like-like*, I create a situation of a twitter user trying to use like buttons to attract more followers. The image above is an avatar I created for this game. And I asked this question: Why would people follow this person who always clicks likes for others instead of posting their own tweets? I assume they just want some “likes” from others. If they cannot get what they want, they will leave quickly. In this game, the number of your followers would be displayed. If your followers have not got what they want, they will unfollow you. When your follower numbers go down to 0, the game ends.



**Follower: 0**  
Try again?



[Back to menu](#)



To rebuild that special situation, I picked some real tweets from Twitter, all from different users with different languages. Players may not understand a single word of these tweets, but they will still click likes, for a higher score and attracting attention. This digital world of social media is such a cruel world for those virtual avatars and people who use those avatars. You cannot prove your existence without attention from others. But people tend to live alone in the real world. We need each other, more than before, and less than before.



Follower: 100

Like-like

4/2018

Mouse Driven Artist Video Game







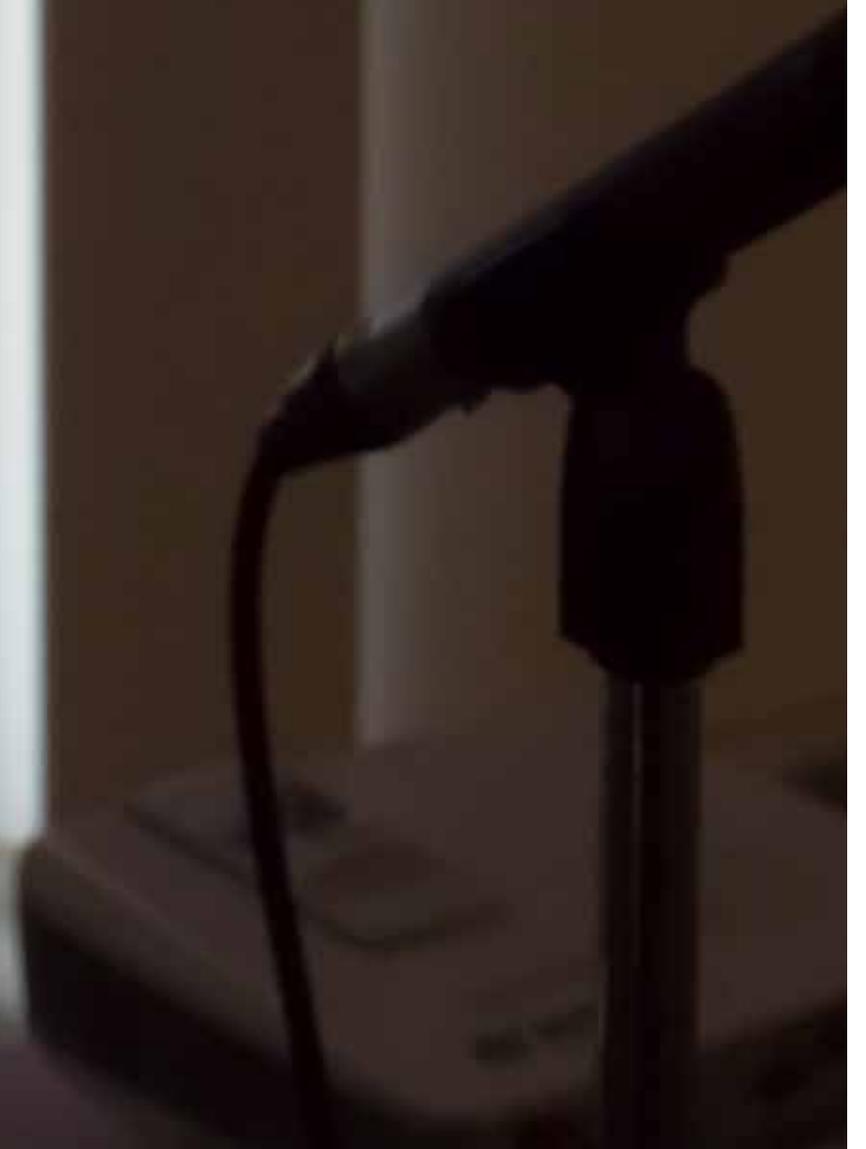
*Virtual Marching*  
Interactive program  
2019

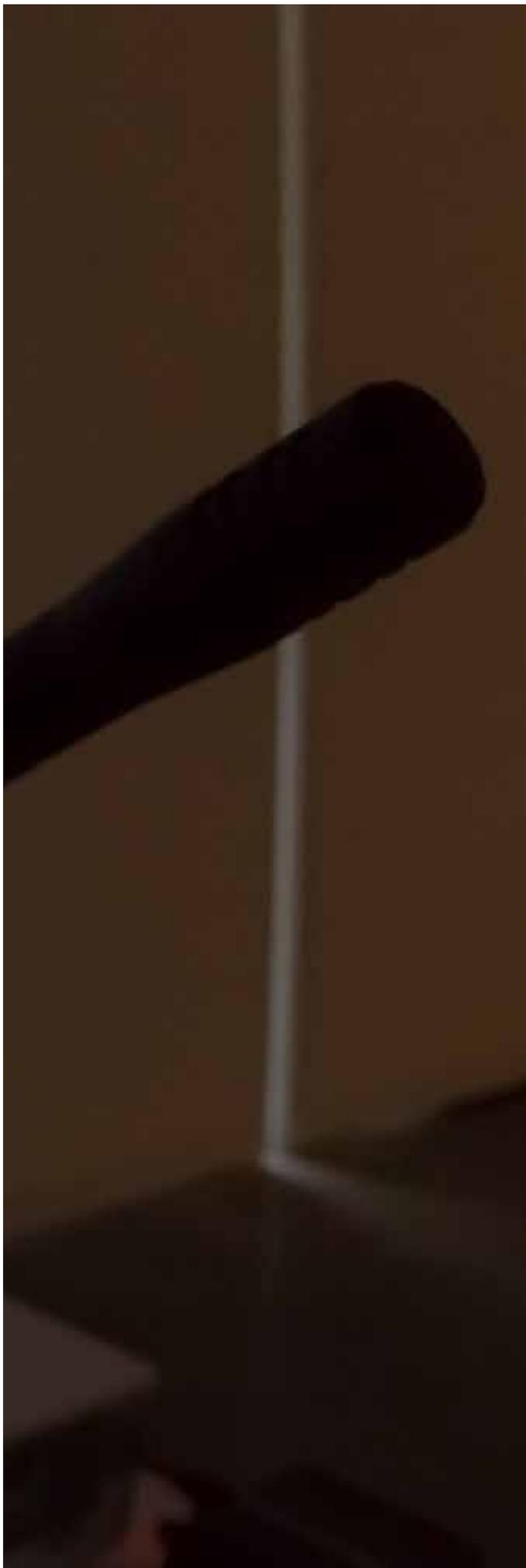
Hint: Say “One! Two!” to those soldiers on the screen.  
They will get your order and keep marching.





As a Chinese student, I went through a military training just like all my schoolmates. When students are going to the next progression (one level of schooling to another, for example, from middle school to high school), they need to finish military training which could last from 1 week to 1 month. The military training aims to train people to obey orders, and I was obviously not a good student for those instructors. After I watched the national day military parade (people call it “shi yi”, which means October 1st), a strange feeling generates in my mind--If we just want to see thousands of people marching like one, some programmed androids could do way better than real persons. But people who give orders will still do this because of the feeling of control and power, no matter how much time soldiers need to waste on this marching training.





Therefore, I made this simple sound-controlled game. Audiences can speak any words to these soldiers to give them a command, and those soldiers will obey the program--March! Feel free to pretend you are a commander or general who is training obedient soldiers. But it is not just a game. Everyone knows that these acts of command and control do not only happen in the virtual world. In this way, the virtual game space becomes a mirror, reflecting all things happening in our real life.



# Technologies

## Software

Processing 3.3.5(revision 0262),with Java Version 8 update 211

Unity 3D version 2018.2.10

Autodesk Maya 2018

Adobe Photoshop cc2017.1.1 Release 20170425.r.252 x64

Adobe Premiere Pro cc2017 2017.1.2 Release v11.0 Oasis

Adobe After Effects cc2017 2017.2 Release Version 14.2.1.34

Adobe Illustrator cc2017 2017 1.0 Release 21.1.0

Adobe Audition cc2017 2017 1.1 Release Build 10.1.1.11

## Hardware

Apple Thunderbolt Monitor

Apple Mac mini

Apple Keyboard & Mouse

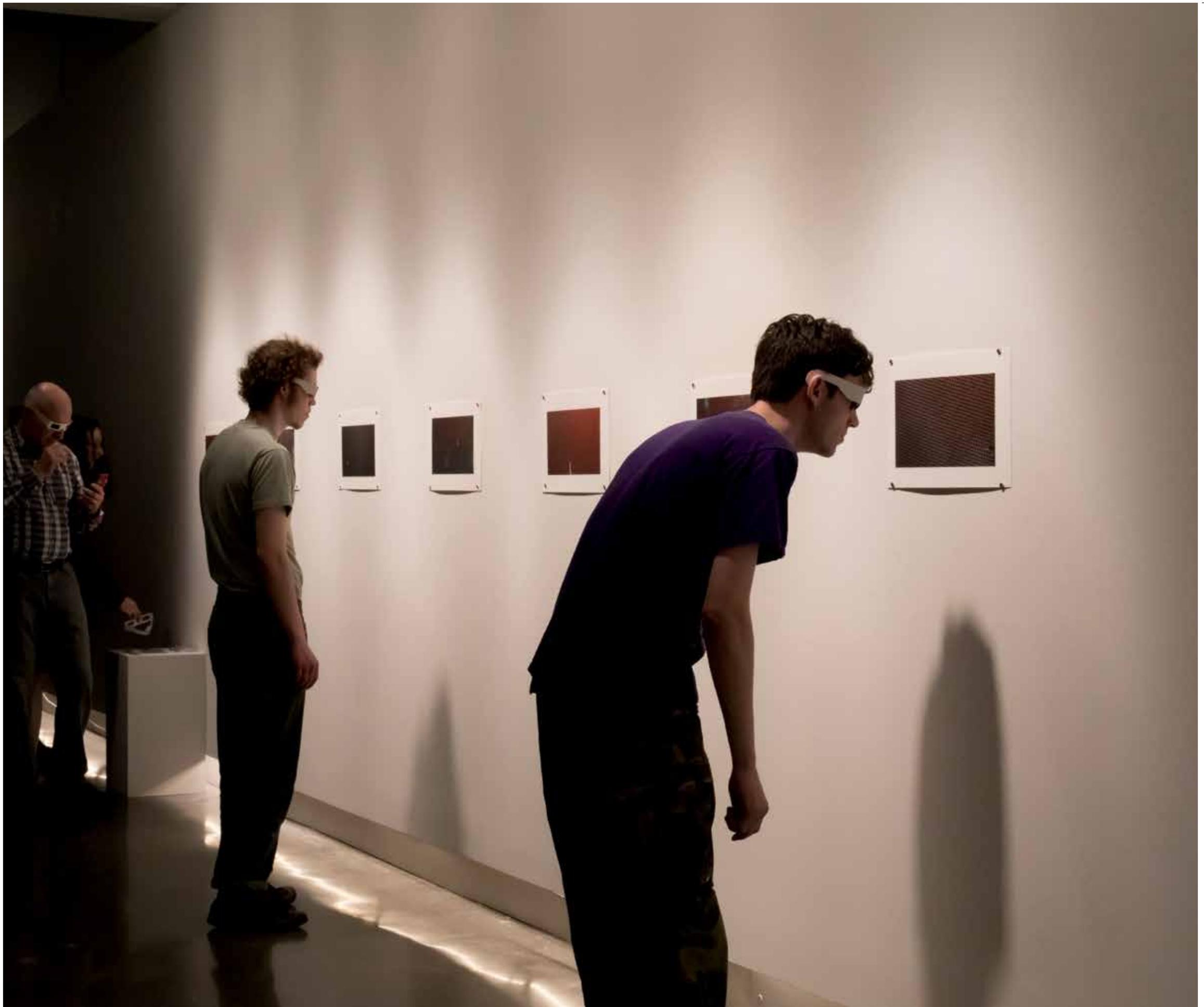
Sony Bravia 40 inch Full HD LED TV

Panasonic AG-HMX100 video mixer

Sprite HD1080p video repeater

BenQ HT 1085ST short throw projector

AmScope Microscope MU



# Bibliography

## Publications

Katherine Isbister, *How Games Move us : Emotion by Design(Playful Thinking Series)*. Cambridge, MA: The MIT Press, 2016.

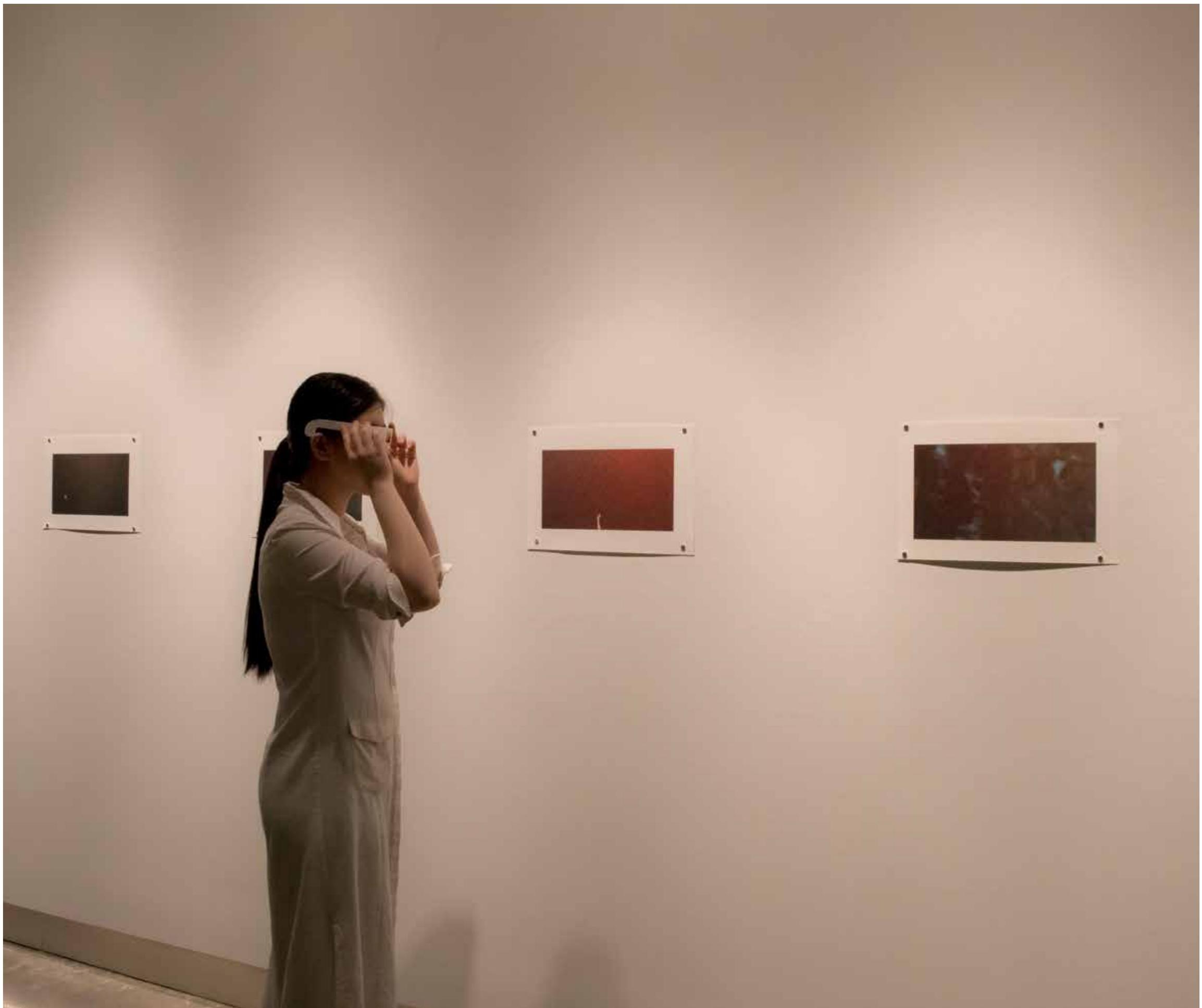
Robert Atkins, Rudolf Frieling, Boris Groys, Lev Manovich, *The Art of Participation: 1950 to now*. London: Thames & Hudson Ltd, 2008.

## Artist work

*Videofreak*, Allen Riley, 2017

## Website

“Magdeburg hemispheres”. *Multimedia Catalogue*. Institute and Museum of the History of Science, Florence, Italy. 2006.<<https://brunelleschi.imss.fi.it/museum/esim.asp?c=500014> >



# Acknowledgements

This book would not have been possible without the support and encouragement of many people. I would like to start by thanking my committee chair, Barbara Lattanzi. From advising on my works to reading every draft I made, she did so much for my thesis show and this book. Thank you! Also, I sincerely appreciate my committee members- Xiaowen Chen and Andrew Deutsch, I got a lot of great ideas from you. To William Contino, thank you for doing some brainstorm from the first year, and you really helped me a lot. Without the experiences and advice from Peer Bode and Joseph Scheer, I cannot made out this book and video works. Complete thanks to all faculties in the Expanded Media Divison!

A special thank to Mark Klingensmith, who helped me with the whole process of exhibition floorplan and installation, I cannot finish all these works without you. During the graduate period, I got so much support and help from all my schoolmates. I want to thank my show partner Devin Henry; you are always a reliable person and willing to help others. Song, Qing, Qinxuan and Gongzhuo, you guys gave me support and encouragement. Working alone for the exhibition set up is such a hard job. Fortunately, I got help from my friend, Zhaoheng, I really appreciate your support.

About this exhibition, all videos and documentation could be found at  
[vimeo.com/lanwang](https://vimeo.com/lanwang)

