



YUECHEN WANG



Stage.

Selected Works 2018-2020

wangyuechen2020@outlook.com

| wangyuechen.xyz

When people speak, act, and post on social media, their interactions with their surroundings constitute a series of watchable stories. Whether physical or virtual, the surroundings become a “stage,” exhibiting one’s life as one’s own drama. As a designer and researcher, I have been exploring and creating the “stage” in life for the past years of my study and work, and I consider interactive design to be the best approach to reflect on this topic. I tried do make a difference in real life by influence the relationship between people themselves and space, image, device, information.

[STATEMENT]

[01] **FLIPPED**
encouraging communicate

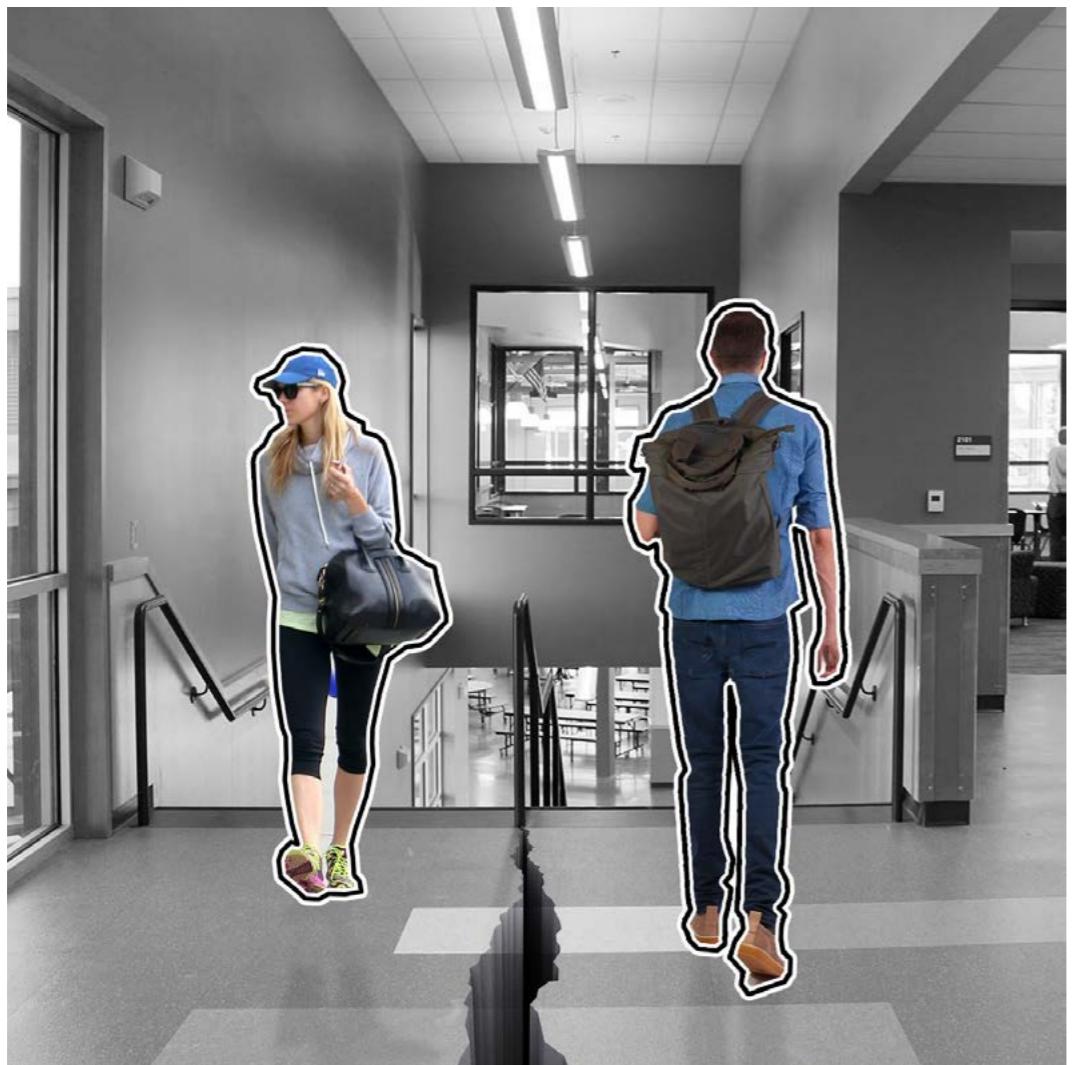
[02] **TO THE DISTANCE**
cycling virtual tour

[03] **FRIENDLY SIGHT**
design with pedestrian positioning research

[04] **RURAL REVITALIZATION**
saving a decaying village

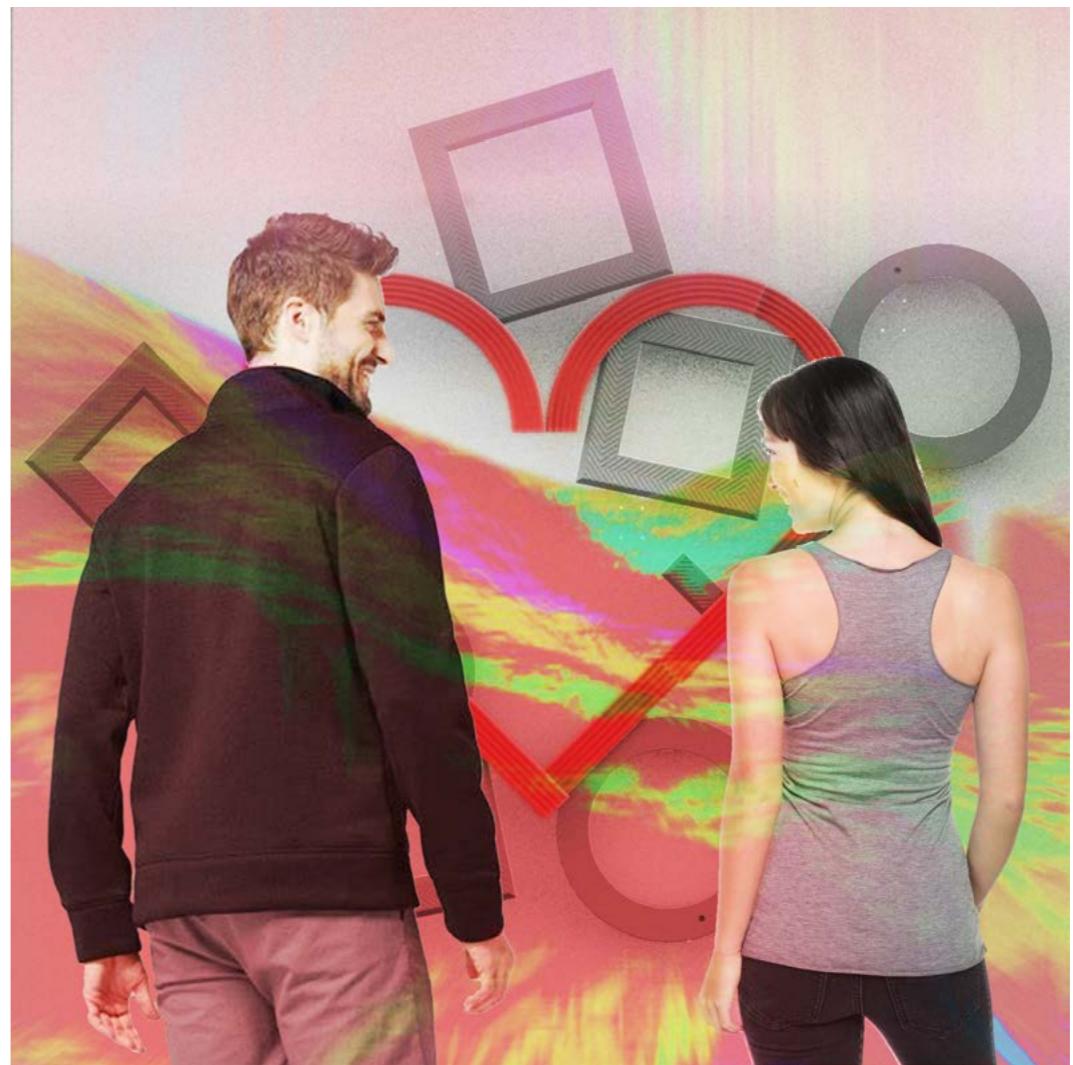
[05] **CROSSING THE STRAIT**
media for media

[CONTENT]



[01]

Modern lifestyles have changed traditional neighborhoods and personal lives, and public spaces have taken on far more social activities, but these changes have also made people somewhat more shy of face-to-face communication and more willing to communicate through the media. The issue of increasing communication and enlivening public spaces is yet to be resolved.



FLIPPED

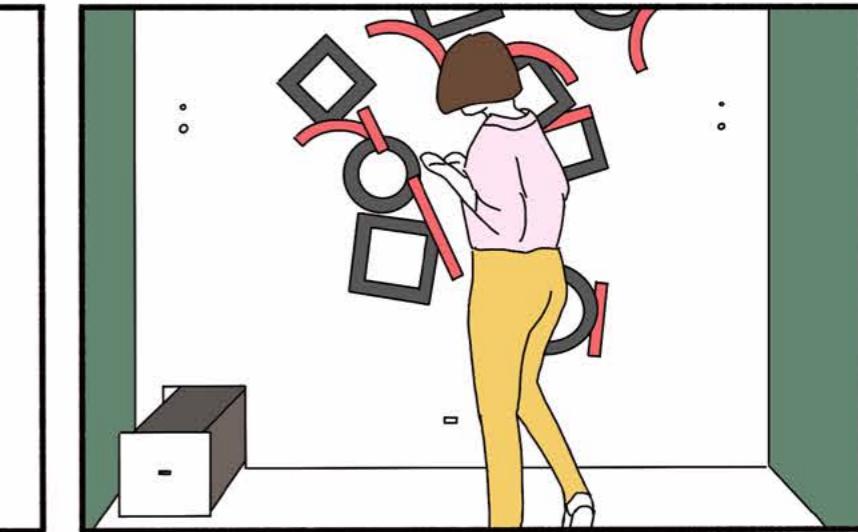
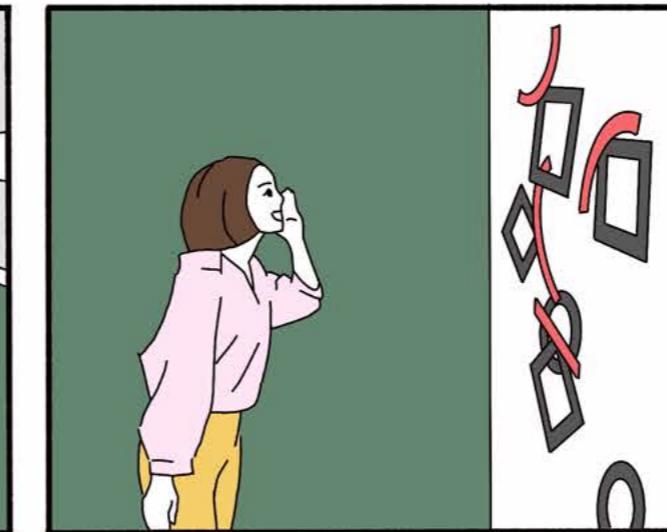
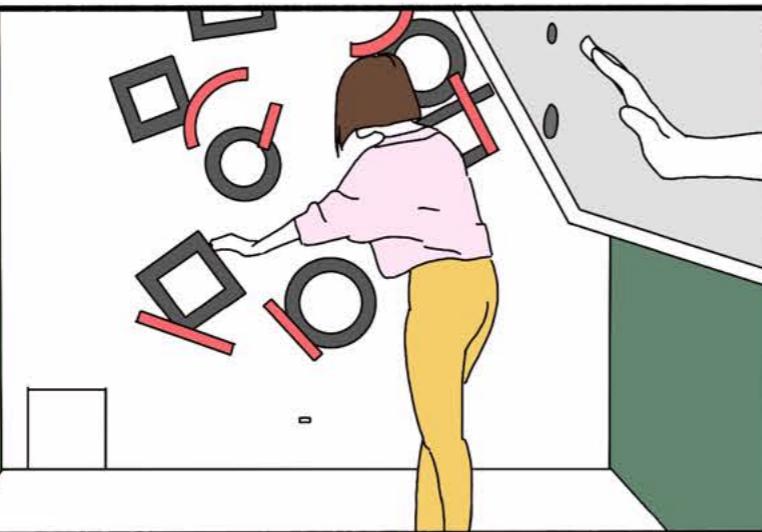
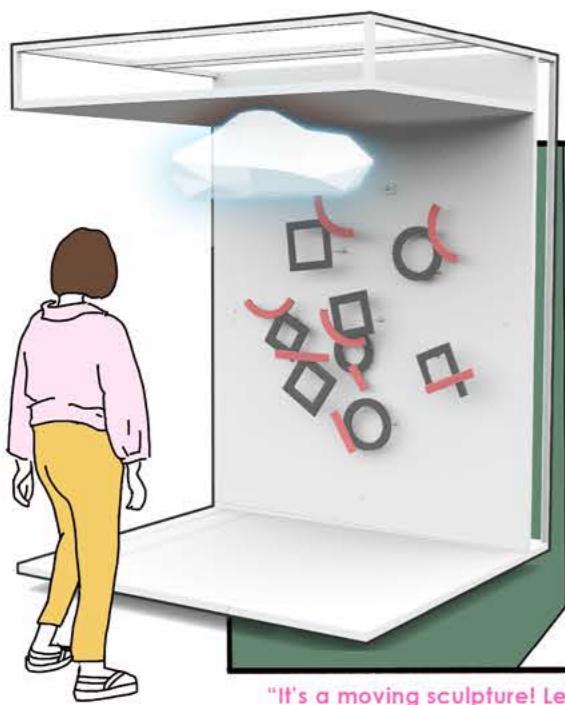
We propose an interactive device placed in public space, which consists of two parts: physical interaction and interface interaction, and the two parts can interact with different people individually and implicitly with each other. Through this interactive environment, people can interact with each other indirectly by interacting with the device, thus promoting direct communication of people and bringing social vitality to the public space.

Teamwork, July 2018

Team Members: LIU Jie, LUO Dan, MA Hongtao, CHANG Jiahui, WANG Yuechen, YAO Yuan, LIN Yuansheng

Contribution: interactive sculpture design, participated in construction

storyboard: the installation provide people with opportunities to begin conversation



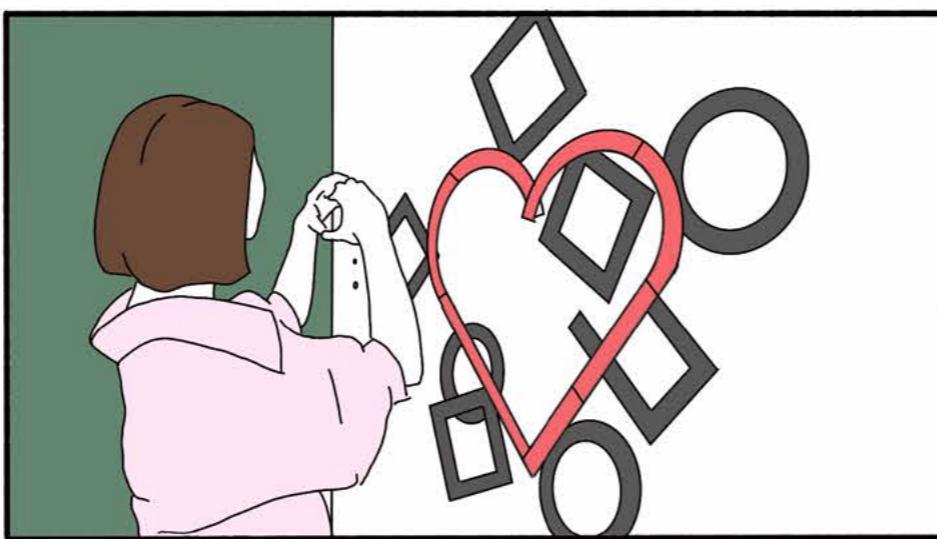
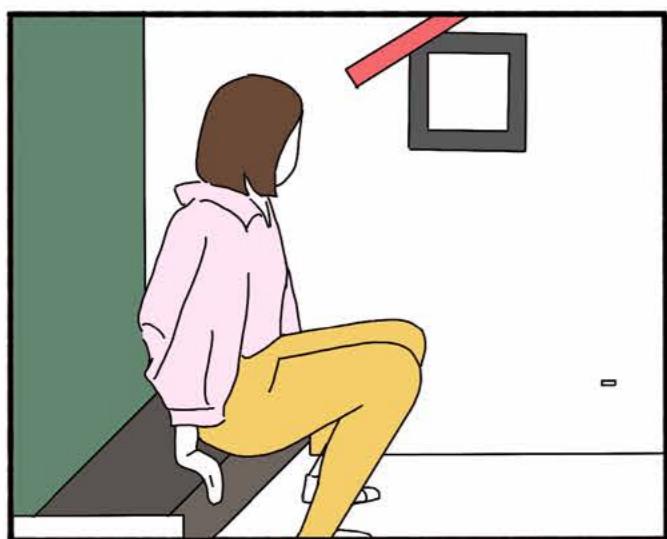
"It's a moving sculpture! Let me see."

"The rotation speed changes when I approach."

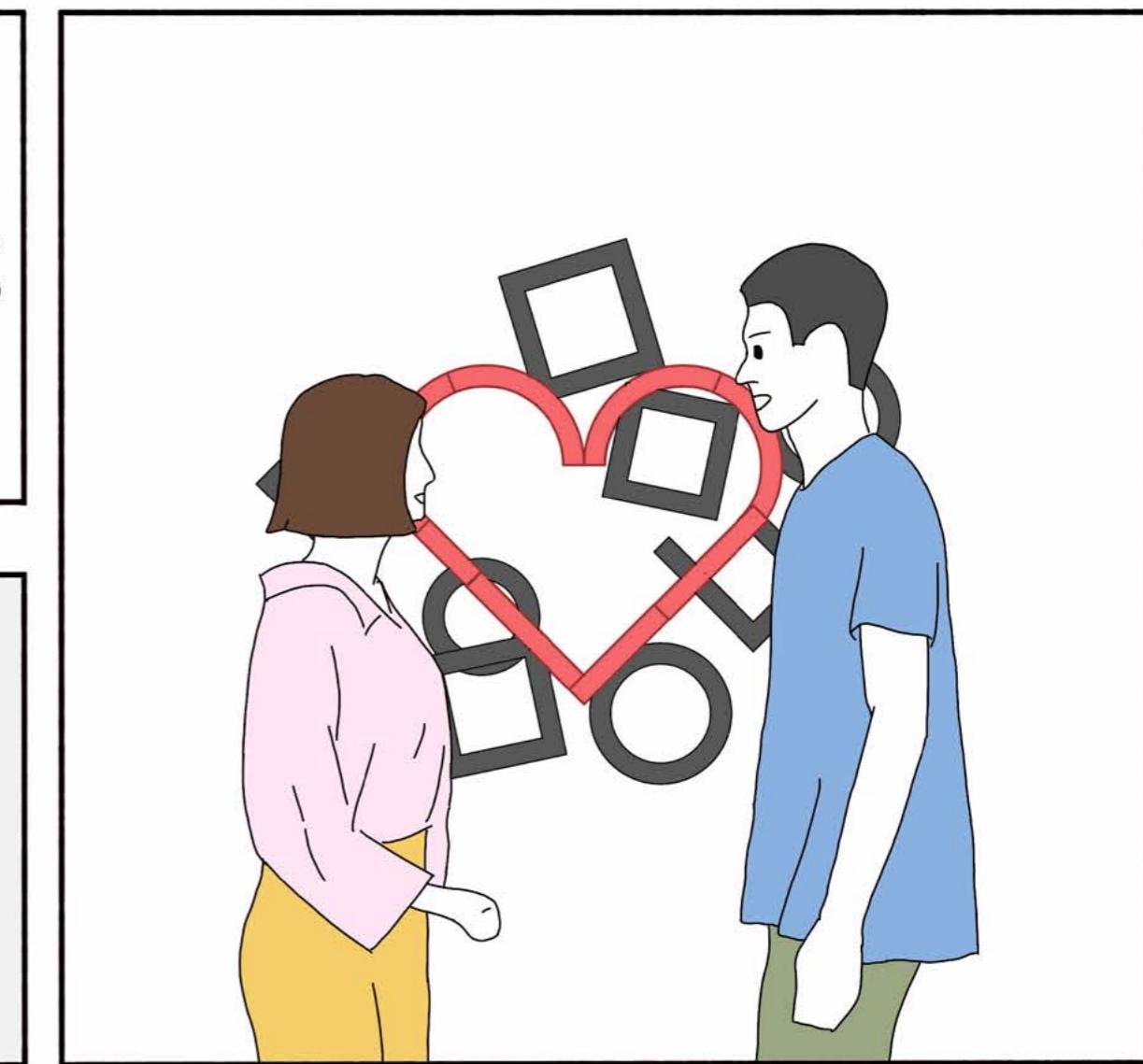
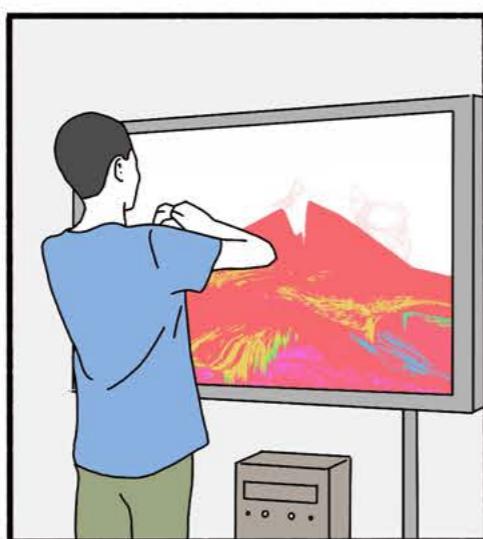
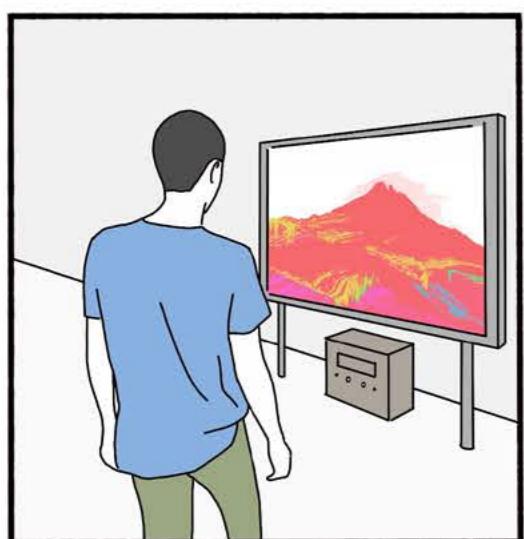
"Hi! I'm flipped. What's your name?"

"I'm Yetta!"

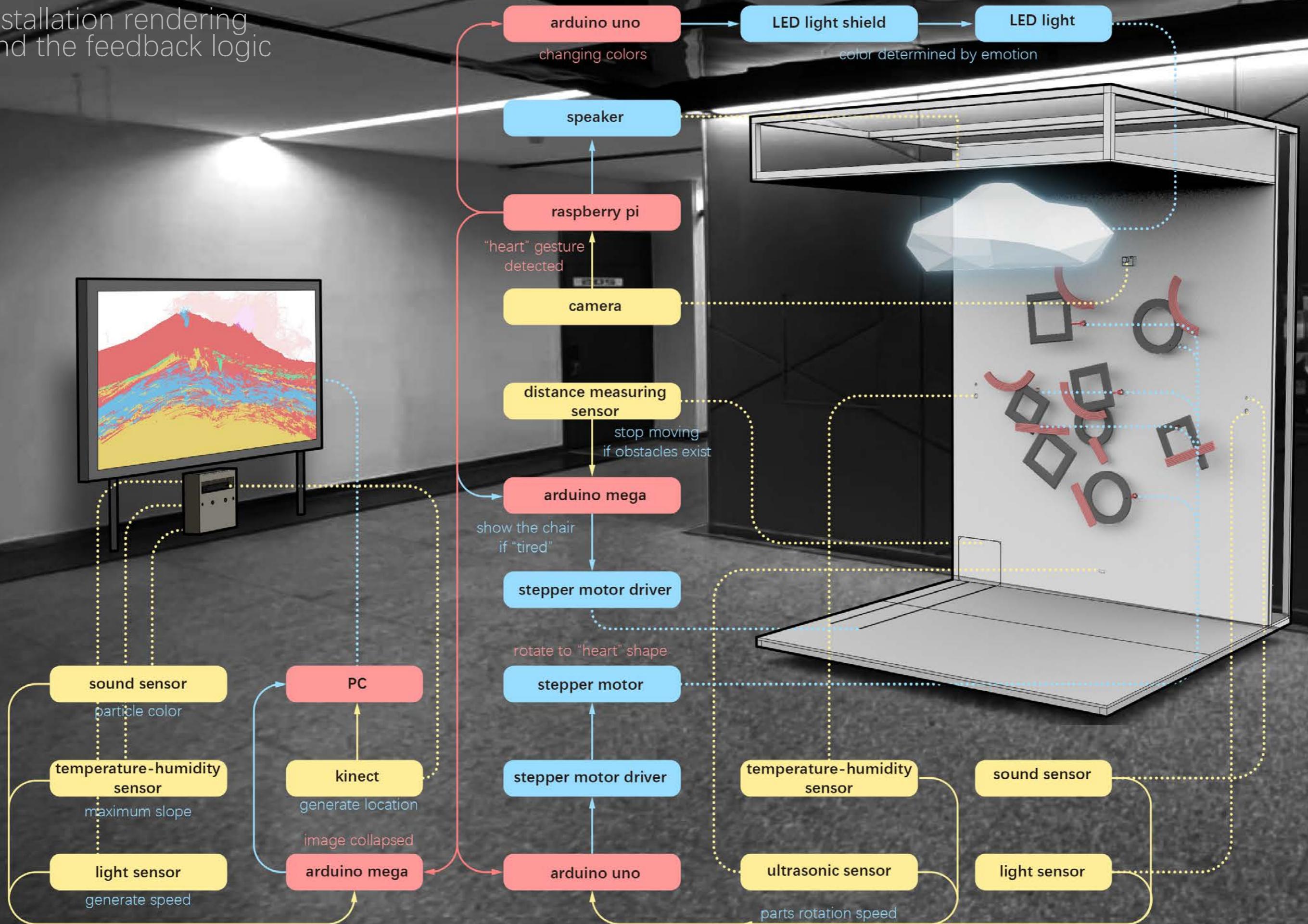
"Yetta, you look a little tired. Want to have a seat?" "Yes. Thank you!"

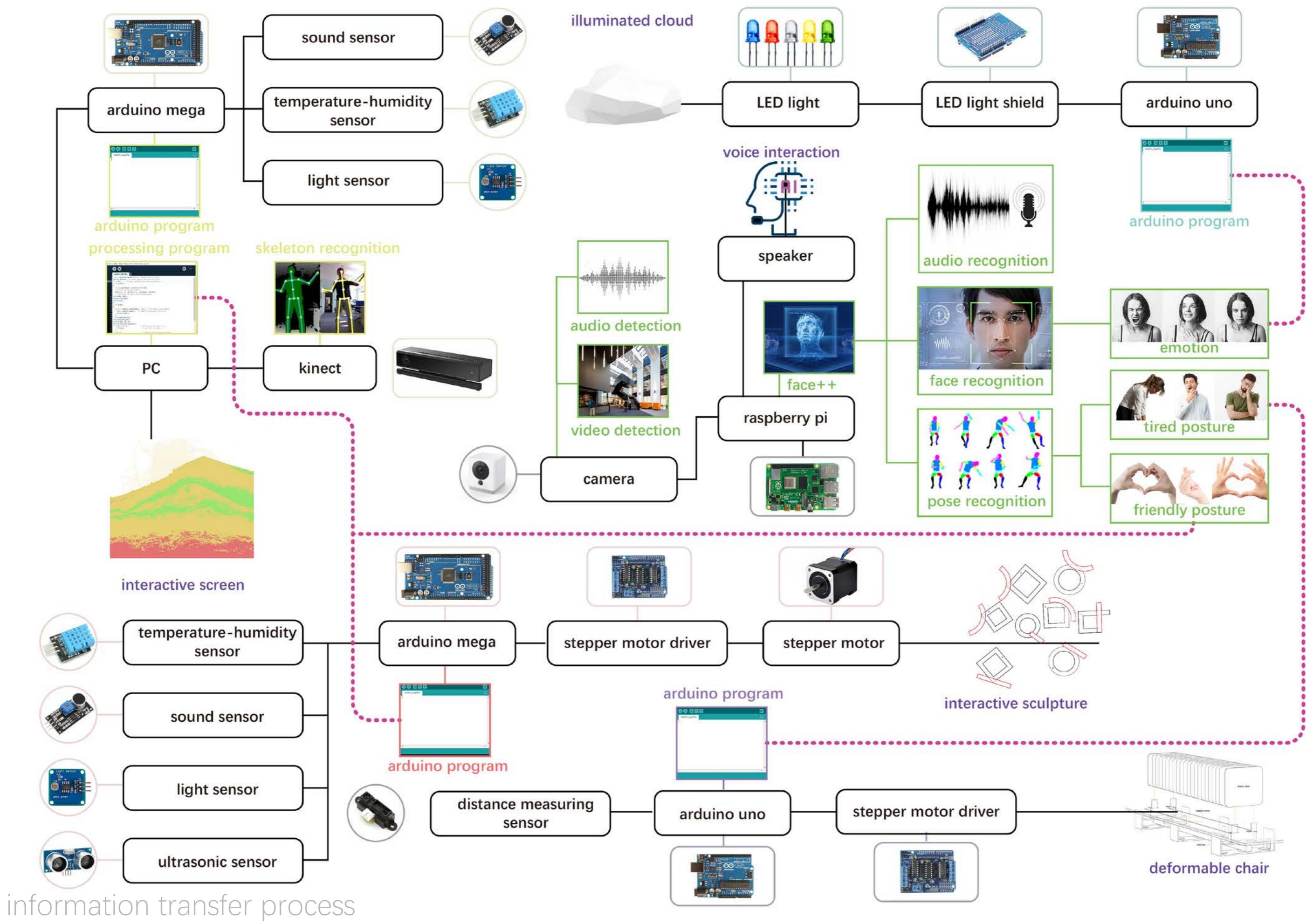


It's a heart!

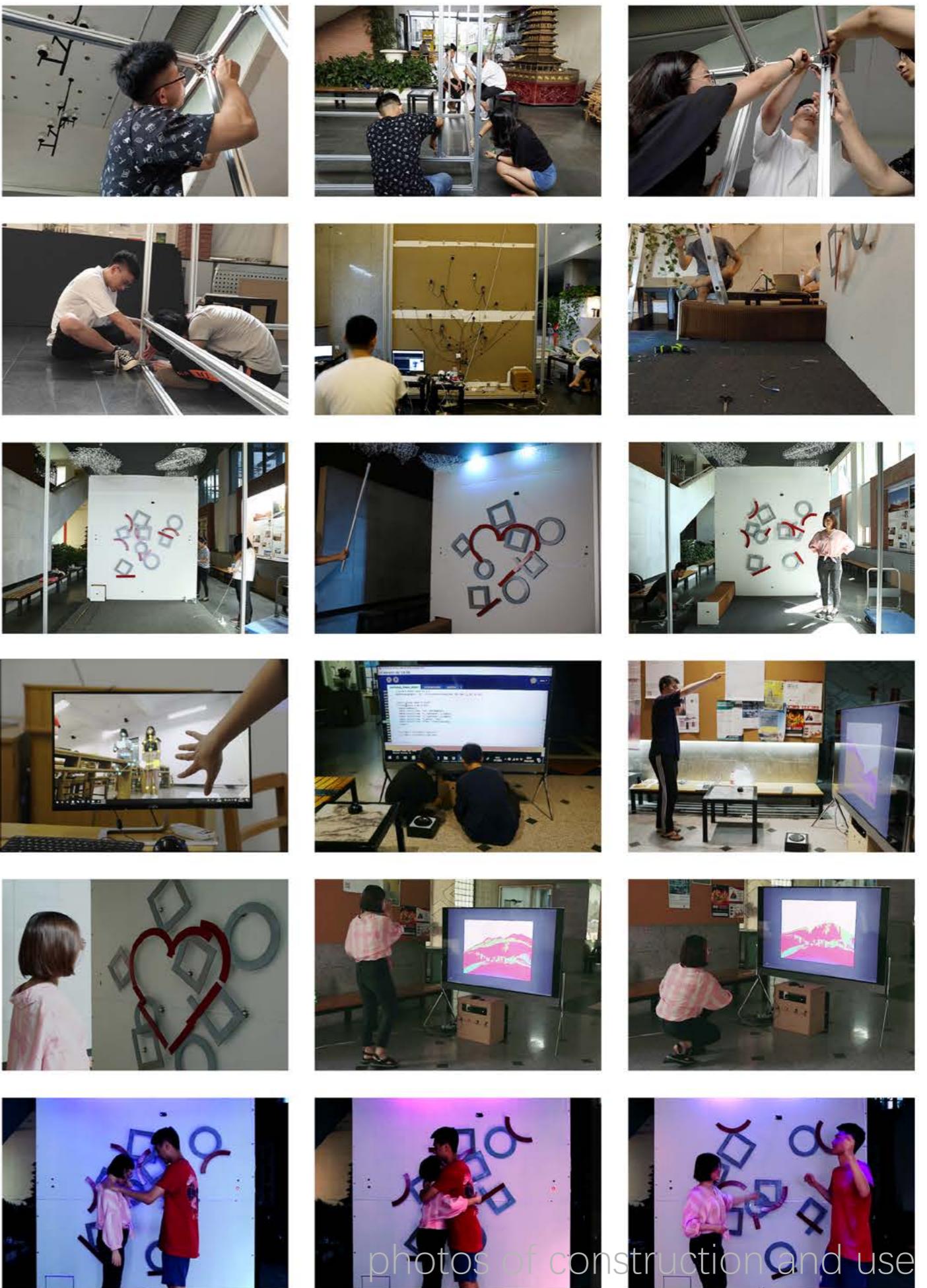
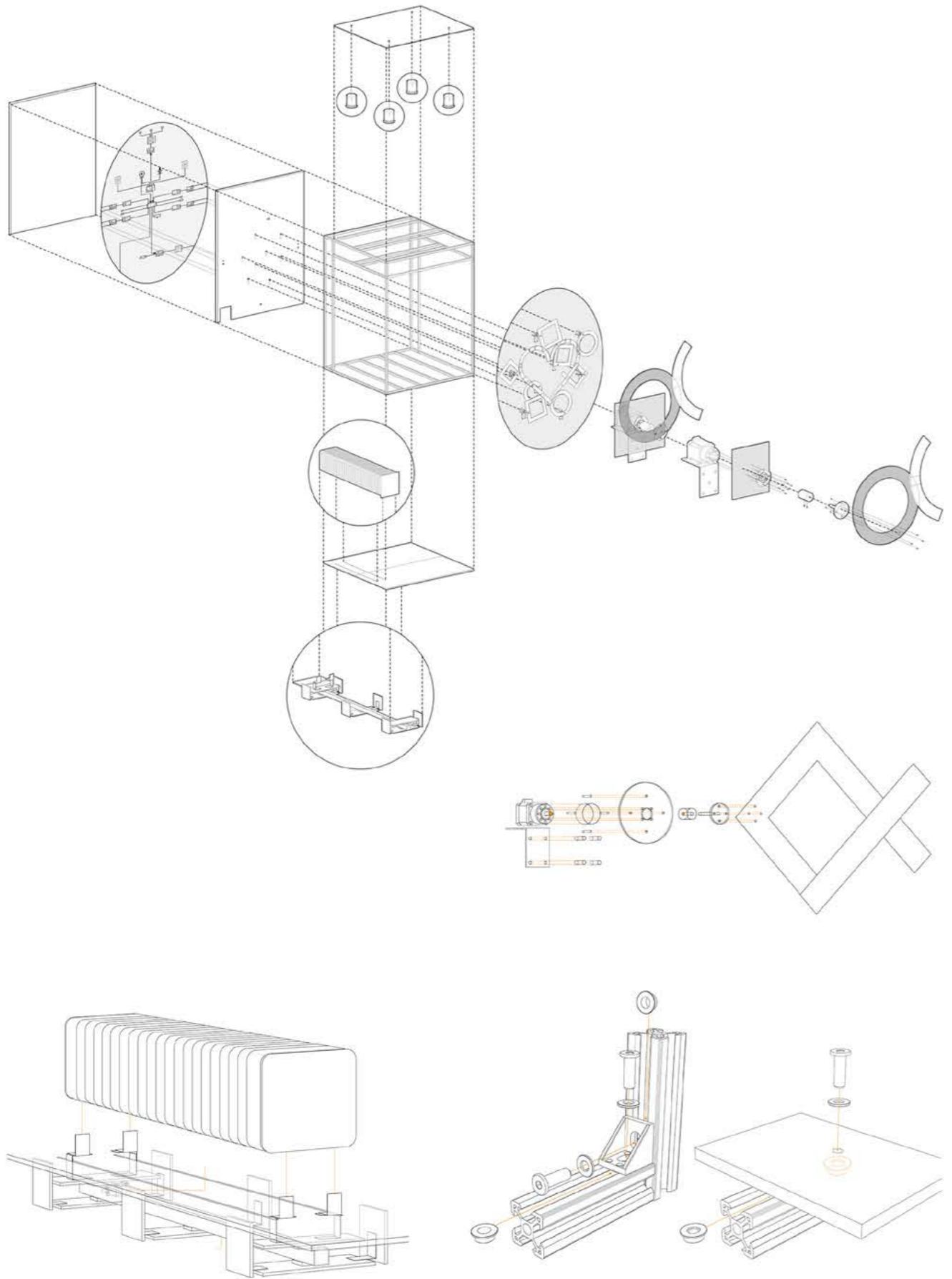


installation rendering and the feedback logic





structure of installation



photos of construction and use

video

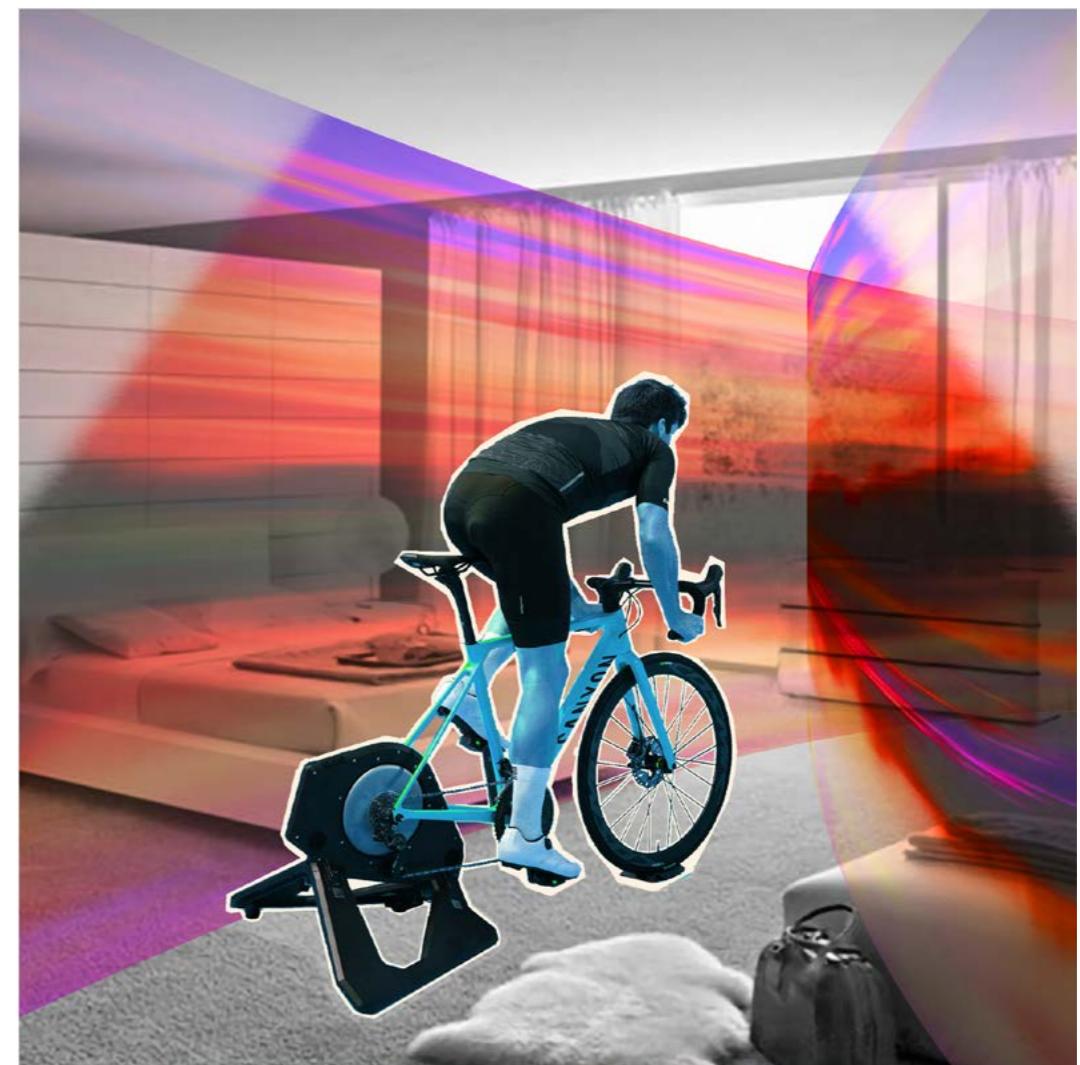
<https://vimeo.com/496432125>





[02]

The epidemic has prevented people from traveling, and some have even been forced to stay at home, unable to leave their homes. The unchanging environment and depressing atmosphere hurt people's hearts. Many people look to the virtual world for solace, but the one-dimensional screen hardly gives a real experience.



TO THE DISTANCE

In response to the quarantine situation, we created a cycling device with the intention of combining the experience of bike riding with an immersive tour, to give people in the lockdown the opportunity to temporarily leave familiar places and have the experience of traveling in cycling through this interactive system.

Career Work

Individual, May 2020

Instructor: Lecturer ZHU Ning, Postdoc. LIU Jie

different scenarios of virtual experience



National Exhibition Center

Tsinghua University

Hutong yard in Beijing

exhibitions in different locations

user research of different immersive experiences

Questionnaire 1	Questionnaire 2
Presence 1. How do you think the similarity between the experimental environment and the real environment? (1-7) 2. Did you feel you are in the environment? (1-7) 3. Did you feel you are moving?(1-7)	Presence 1. Please sort the three experiments according to the similarity between the experimental environment and the real environment. 2. Please sort the three experiments according to the involvement of the environment. 3. Please sort the three experiments according to moving speed in the experimental environment.
Attractiveness 4. Did you feel happy during the experimental environment?(1-7) 5. Are you satisfied with the experimental environment? (1-7)	Attractiveness 4. Please sort the three experiments according to your pleasure level. 5. Please sort the three experiments according to your satisfaction level.
Efficiency 6.Do you feel this interactive method is easy to learn and master?(1-7)	Efficiency 6.Please sort the three experiments according to the difficulty of learning and mastering interactively.
Comfortable 7. Did you feel dizziness during the experiment?(1-7) 8. Did you feel security during the experiment?(1-7)	Comfortable 7. Please sort the three experiments according to how much you feel dizzy. 8. Please sort the three experiments according to how much you feel security.

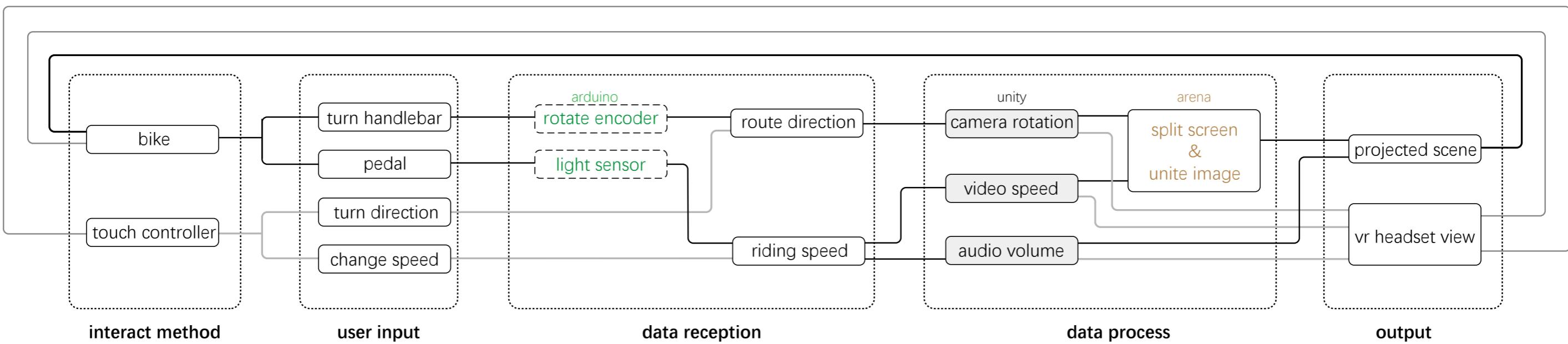
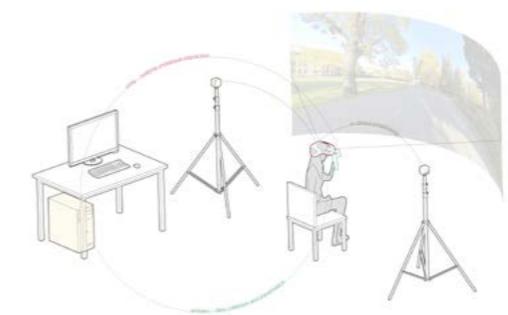
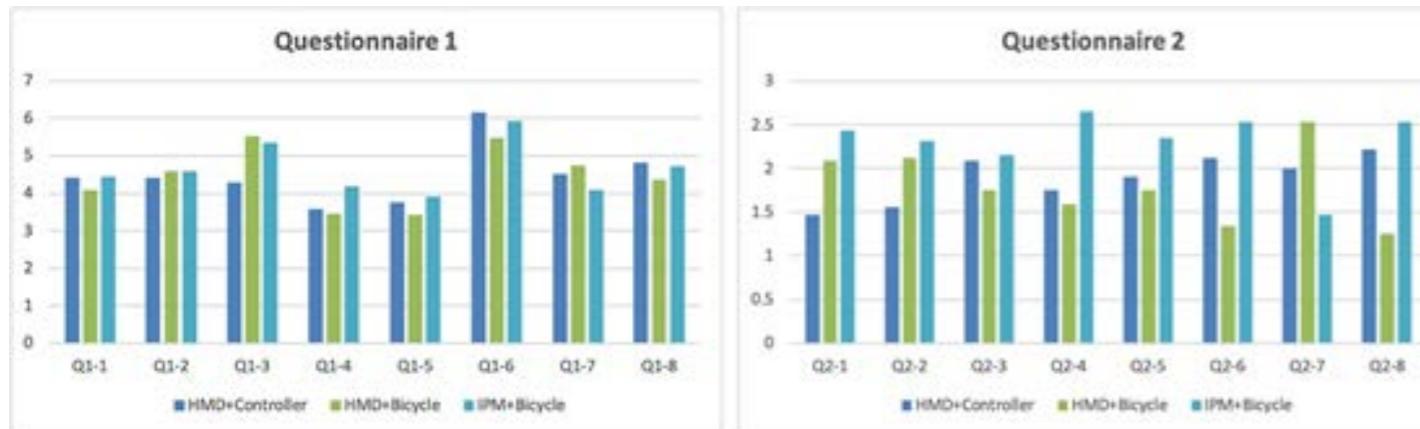
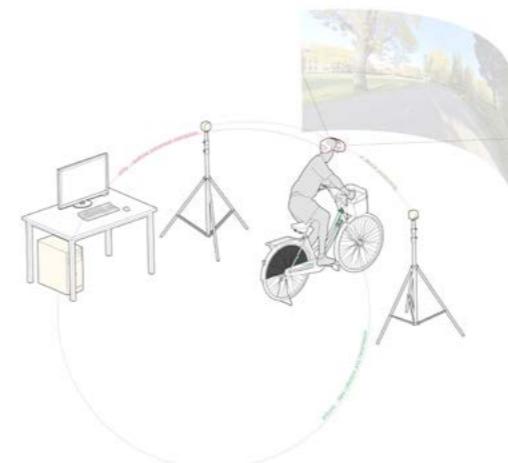
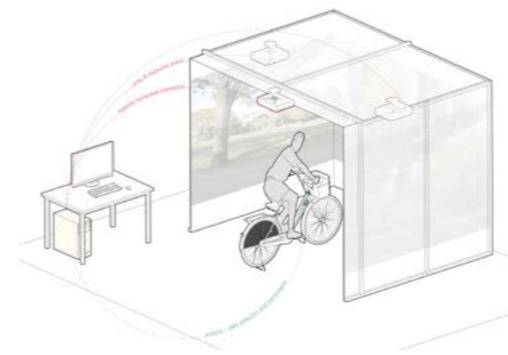
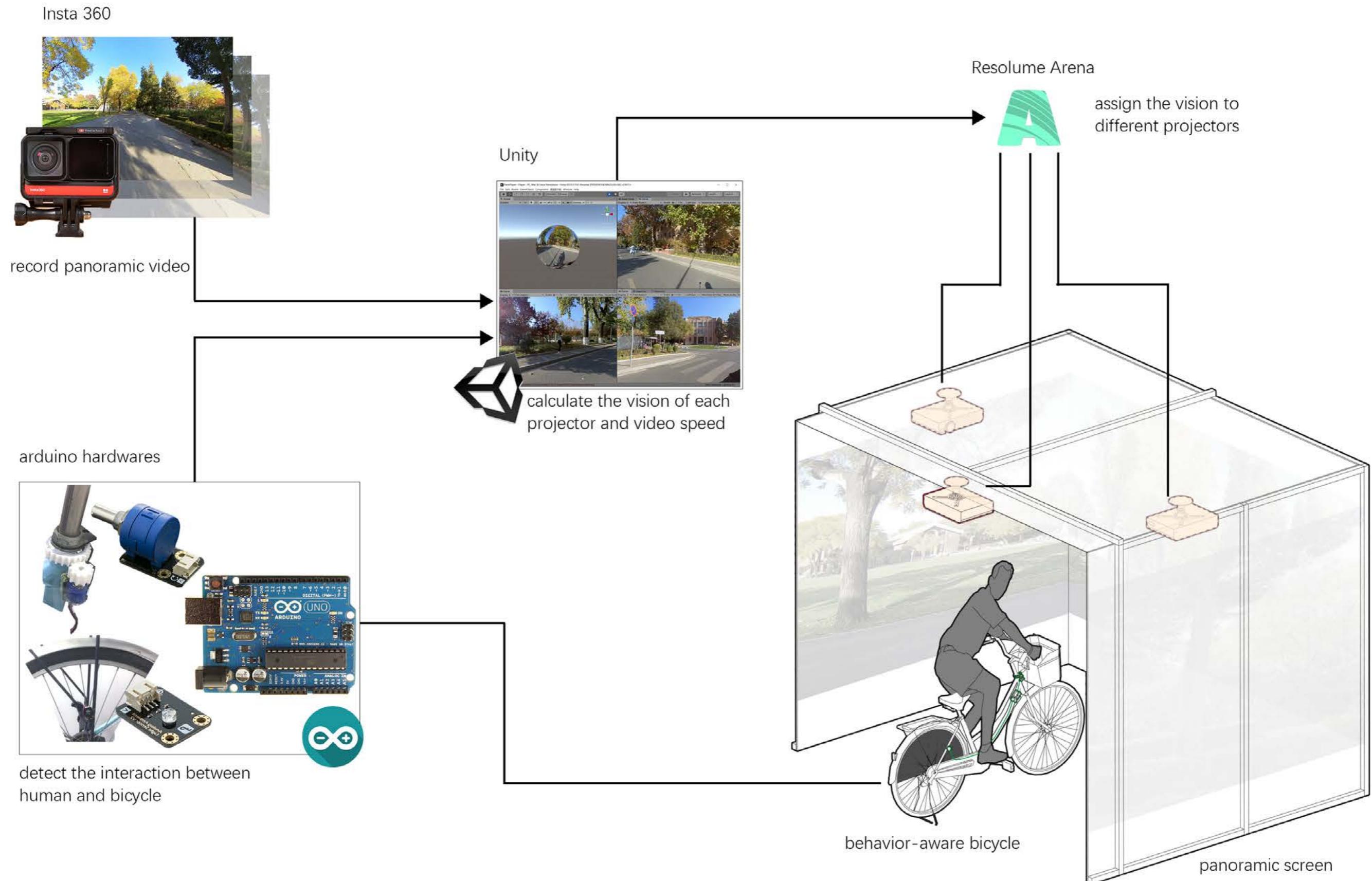


diagram of interaction logic



video

https://www.youtube.com/watch?v=nCVpw8I4_IU





[03]

In contemporary society, there are many public places where there are various kinds of cameras. Many people feel uncomfortable about being watched by cameras because it brings a sense of distrust and lack of privacy. But it can actually deter some unlawful behavior and make society more stable. It may be a question of how to reconcile the security and unpleasant feelings. The campus supermarket at Tsinghua University is also such a place where many cameras exist.

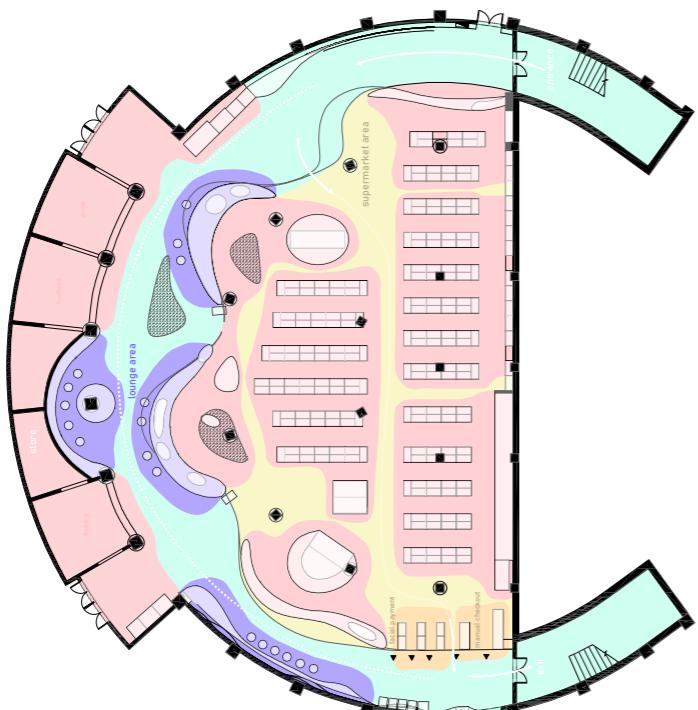
FRIENDLY SIGHT

In this project I designed a spatial decoration in conjunction with a video pedestrian positioning study, so that the interface in the space changes with the movement of people, allowing them to feel a pleasant experience from the camera and easing the relationship between people and this device.

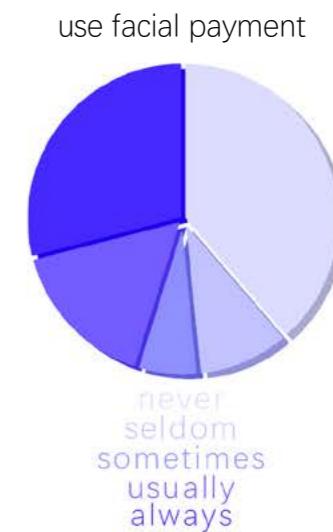
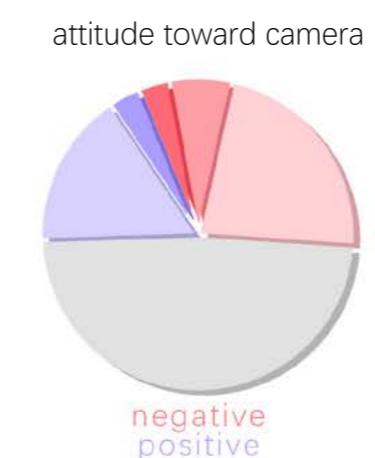
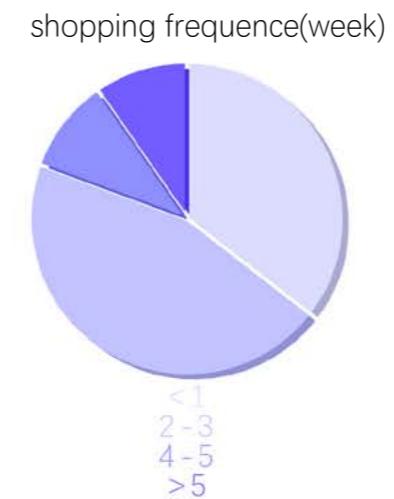
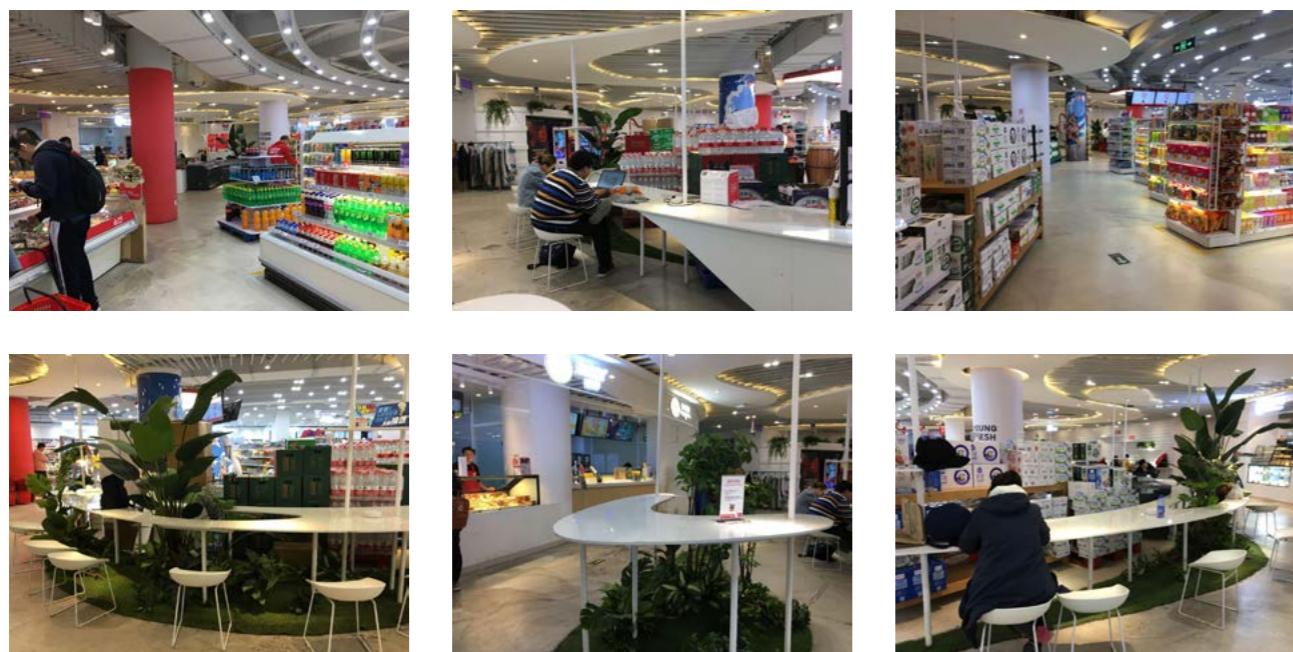
Phase I: Video Pedestrian Positioning Phase II: Tangible Interface Design
Course Project Individual, Winter 2020
Individual, Winter 2019
Instructor: Assoc Prof. Weixin Huang

current state of Tmall Student Supermarket

user study



Tmall Student Supermarket is an underground student supermarket located in the dormitory area of Tsinghua University, remodeled in 2019. Inside the supermarket, there are many public activities and resting places in addition to the sale of goods. Like many other supermarkets, there are surveillance cameras arranged in it. Facial payment is a feature of this supermarket.



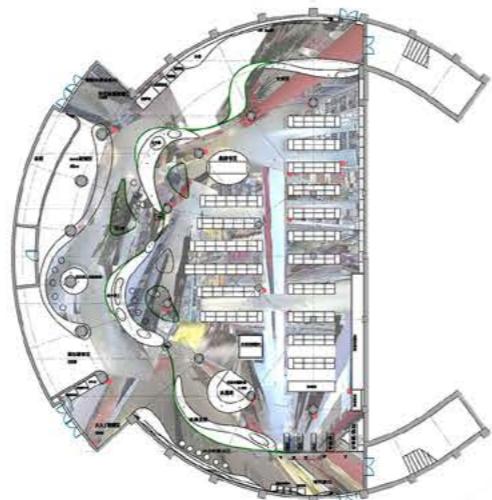
Through a questionnaire survey of 31 students at Tsinghua University, I found that about one-third of the students had varying degrees of negative feelings about the existence of surveillance cameras in supermarkets, such as untrusted, insecure about personal information, and being monitored.

technical route for pedestrian positioning

Preparation of the video. From the video periods to be analyzed are selected, the images are extracted at certain time intervals, and the distortions in the surveillance images are corrected by the checkerboard grid method to make the next step of pedestrian identification more accurate and to transform perspective position into plane position.



Establish the correspondence between perspective position and plane position. For each camera perspective, four points indicating the same position on the plan and in the screen are selected, to find the calculation method corresponding to the position from the video to the plan by OpenCV.



Use Openpose to recognize the skeleton of pedestrian. In this step, it can be judged whether an image of the pedestrian is complete. If it is complete, the perspective position of the foot on this photo can be used for plane positioning of people. If it is incomplete, we need to calculate the simulated foot position after re-identification of pedestrians, and then transform it to plane position.

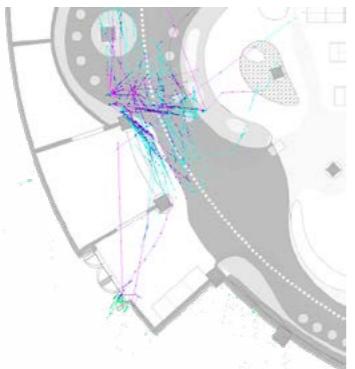


Pedestrian re-identification: I used the model obtained by resnet50 machine learning market-1501 to extract feature vector of each slice of pedestrian. Through comparing the minimum distance of image feature vector, the image of the same pedestrian at each time is corresponding to the adjacent time one-to-one. This pedestrian re-identification method is also performed between different cameras to avoid repeat counting when analyzing the heatmap of population.

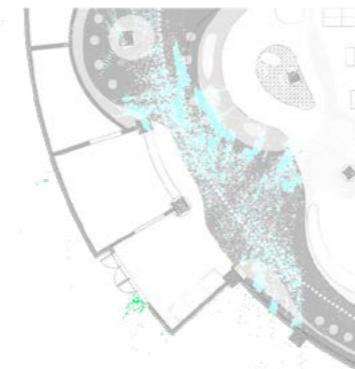
Missing point filling: According to the law of perspective, there is a "vanishing line" in the picture, and the focus of the extension line of the two parallel lines in the space will be on this line. Therefore, the complete pedestrian image can be used to supplement the foot coordinates of the incomplete pedestrian image. After completing all the missing information, the plane coordinates of pedestrians can be located for pedestrian flow analysis and speed analysis.



result of pedestrian positioning



pedestrian route
collected by different cameras



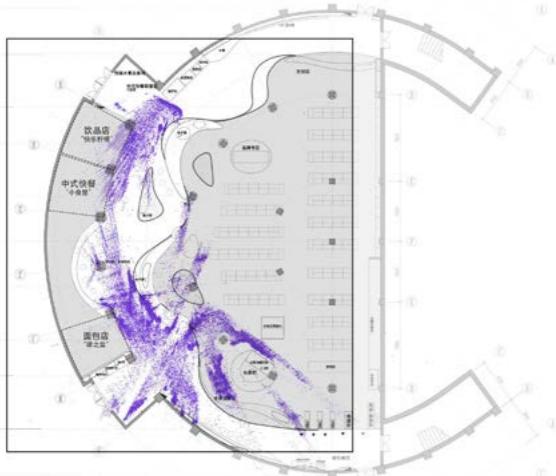
positioning result
of two cameras



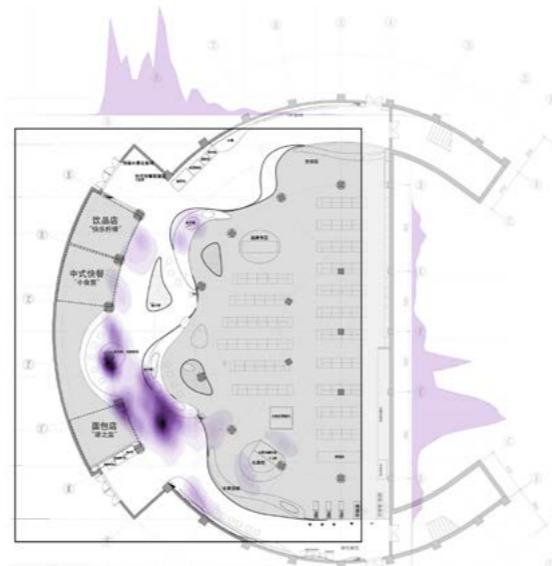
get plane position of people



space relationship with camera



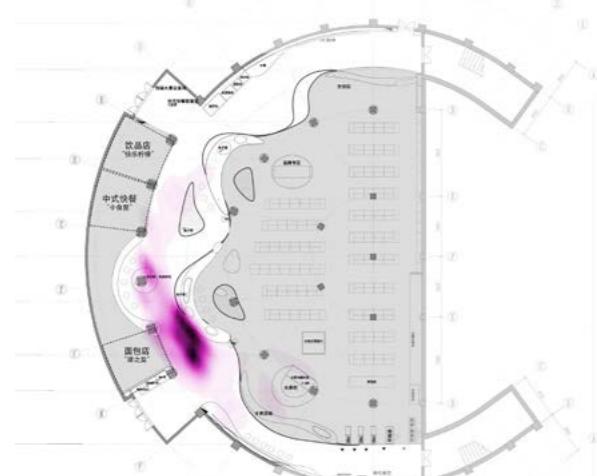
pedestrian position



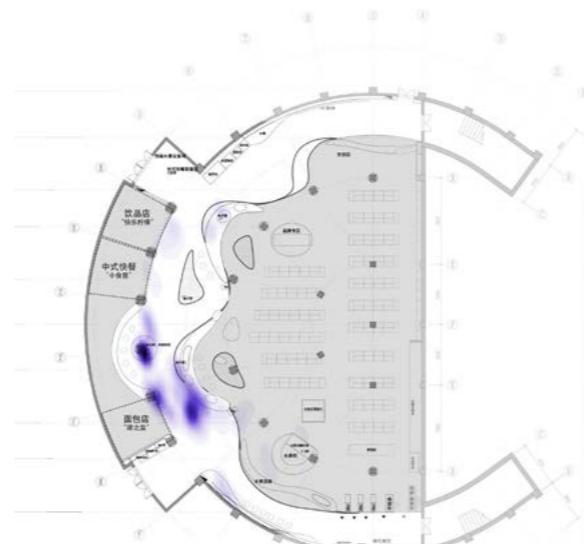
pedestrian heatmap



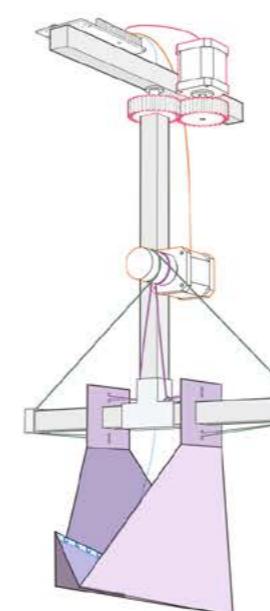
form generate



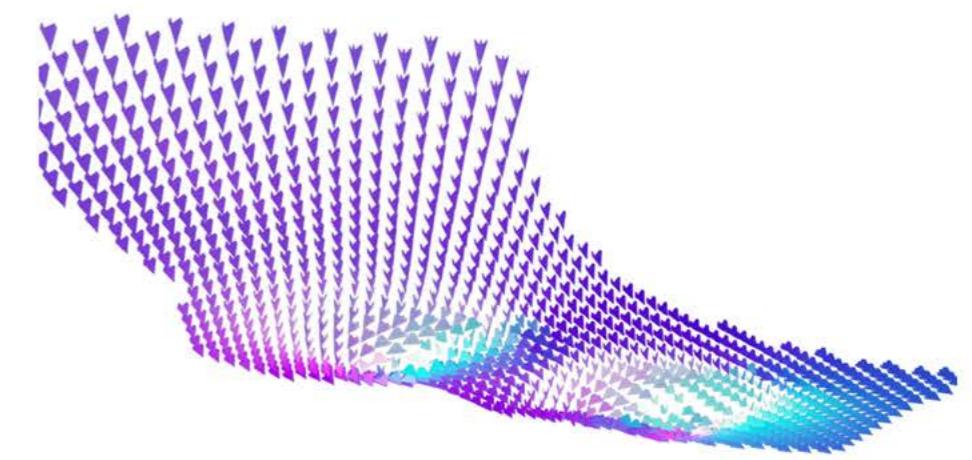
moving customer



staying customer

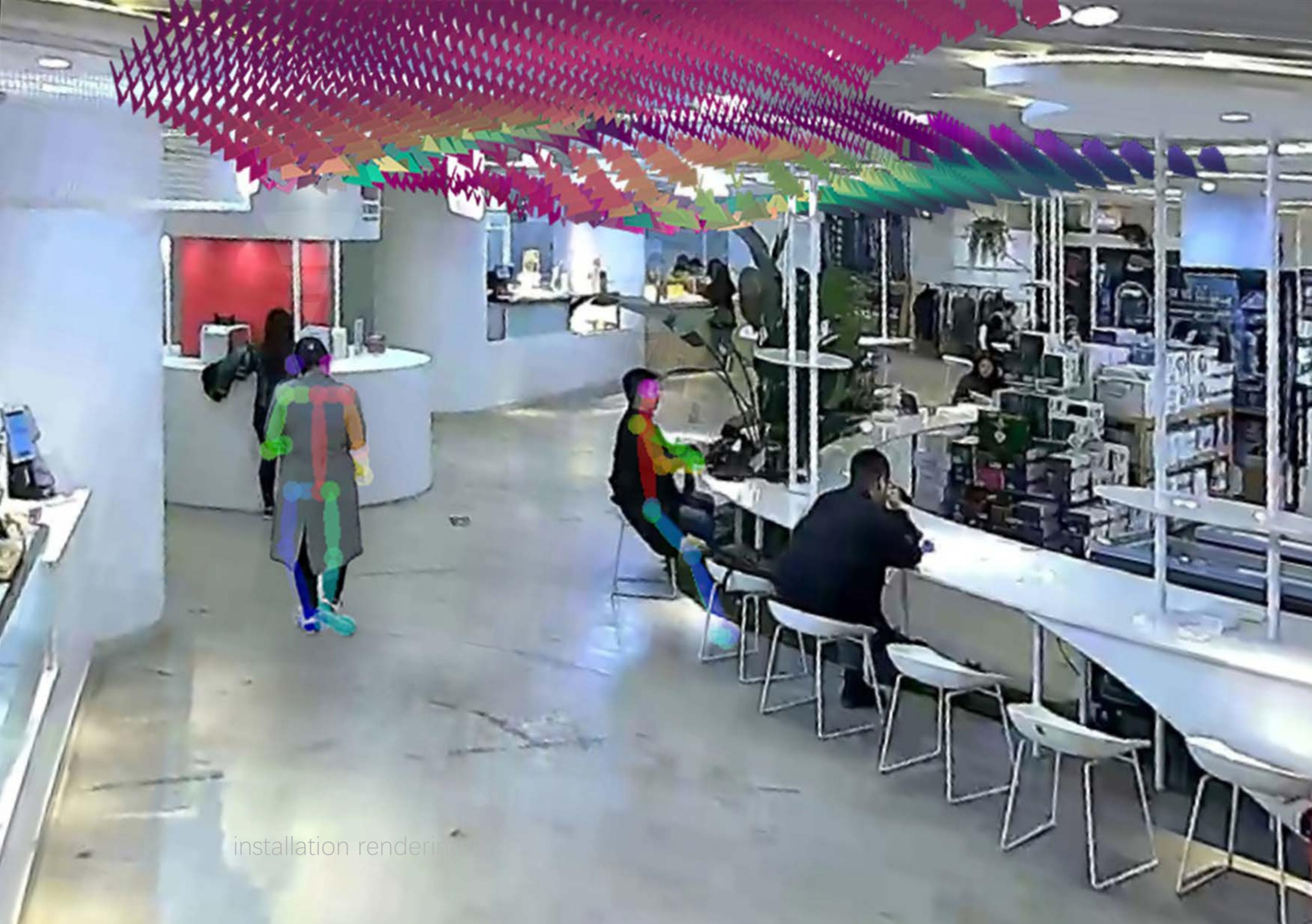


structure of single device



units rotate and change color to compose a surface

logic of interact

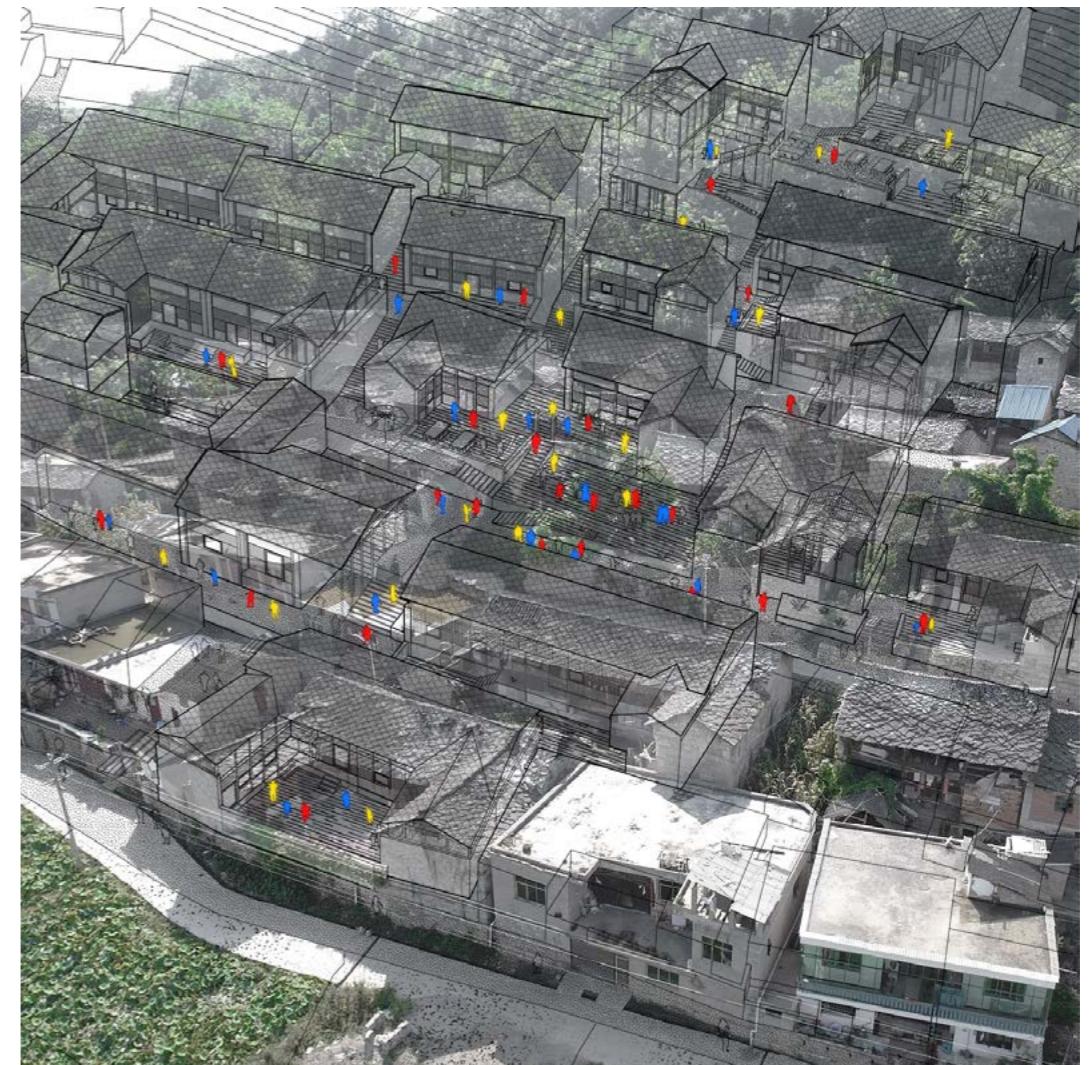


installation rendering



[04]

Gao Yang Village in Anshun, Guizhou Province is a traditional village rich in ethnic and architectural culture. However with urbanization, life in the countryside is hardly self-sufficient and young people are going to the cities, leaving the beautiful countryside in a predicament of neglect and decay.



RURAL REVITALIZATION

We have made architectural plans for the tourism development of Gaoyang Village, which will enable the villagers to carry out their daily agricultural work and at the same time to receive tourists who want to experience rural ethnic culture and architecture with character. By developing tourism, it can bring economic benefits and vitality to the village and provide more employment opportunities so that people can stay here.

Social Practice

Teamwork, Jan 2018

Team member: WANG Yuechen (village renewal plan), DAI Yishu (visitor center design), SU Jiajing (cultural and creative product design), SHI Yiyuan (interview)

Instructor: Lecturer ZHOU Zhengxu

photos of village

The middle-aged people leave the village, leaving only the elderly and children



Advantages of traditional houses: unique craft and style



Problems of traditional houses: badly damaged, unsightly rebuilt, can't adapt to current lifestyle

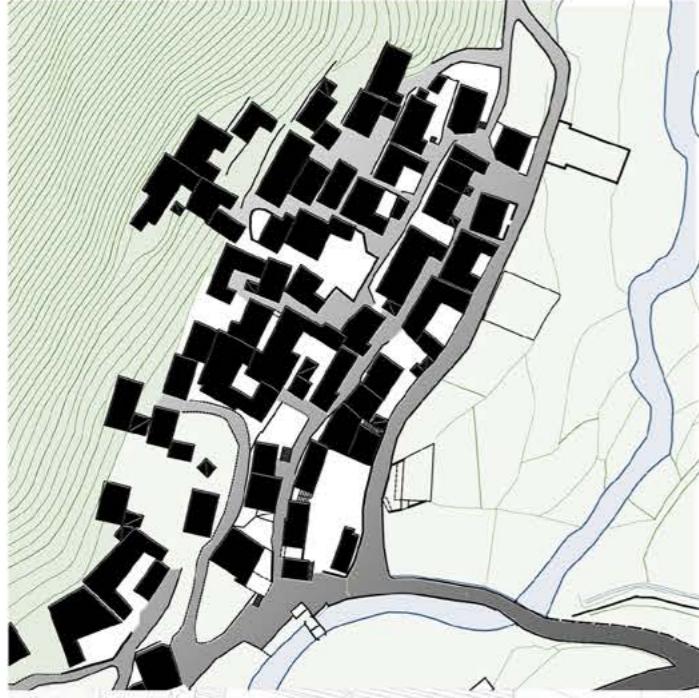
Countermeasures: combining local culture for tourism renewal transformation

survey result of village current situation



renewal process

sort out the village road network



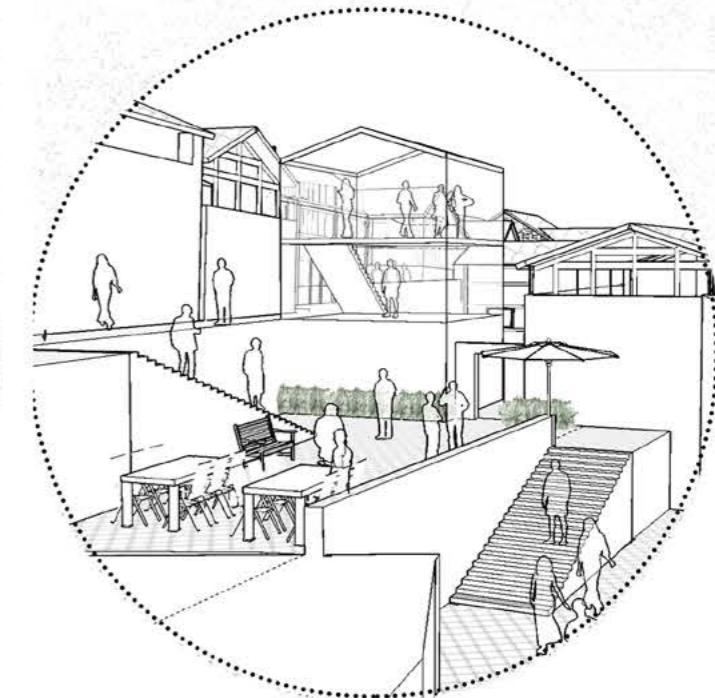
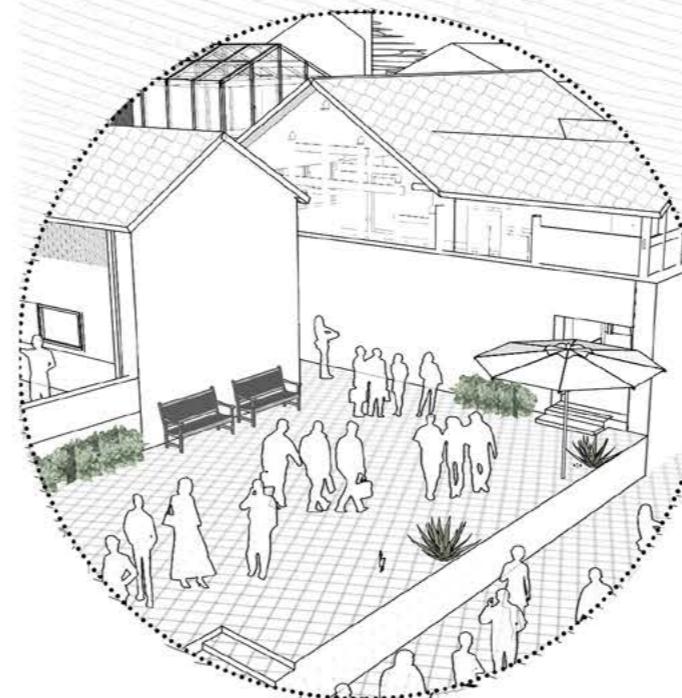
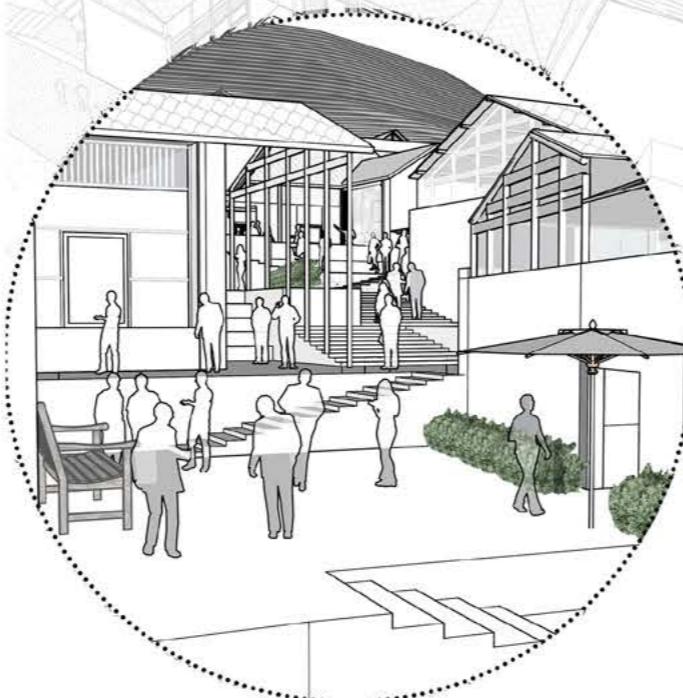
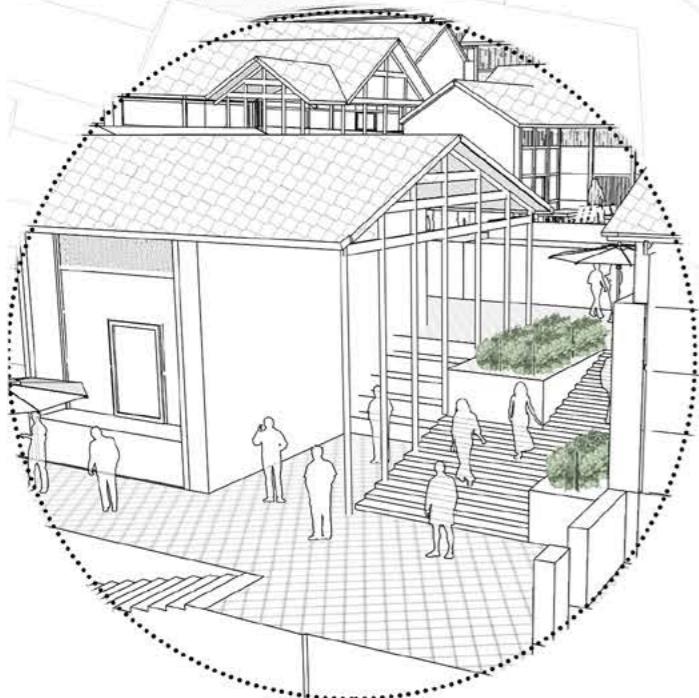
construct main space narrative

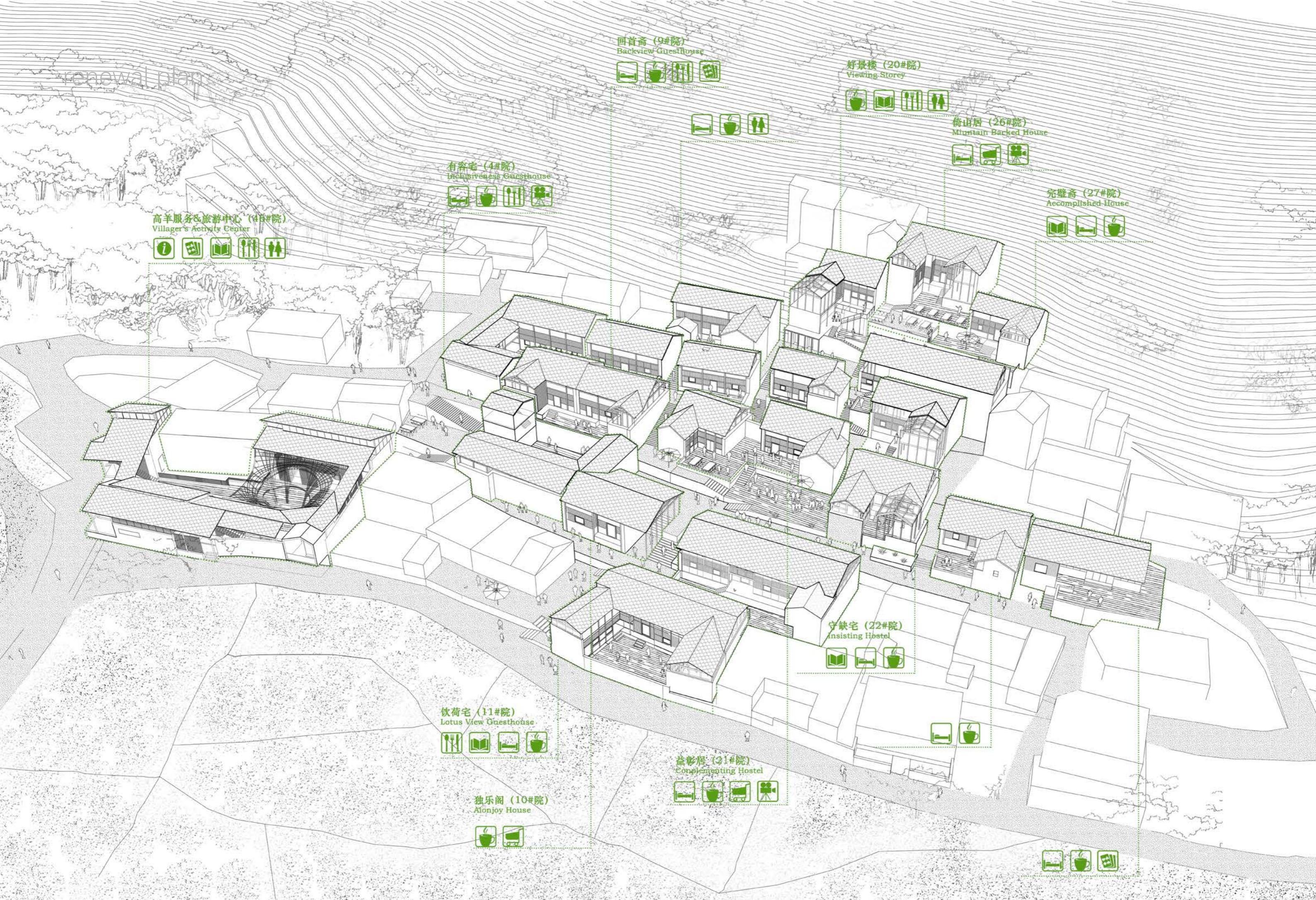


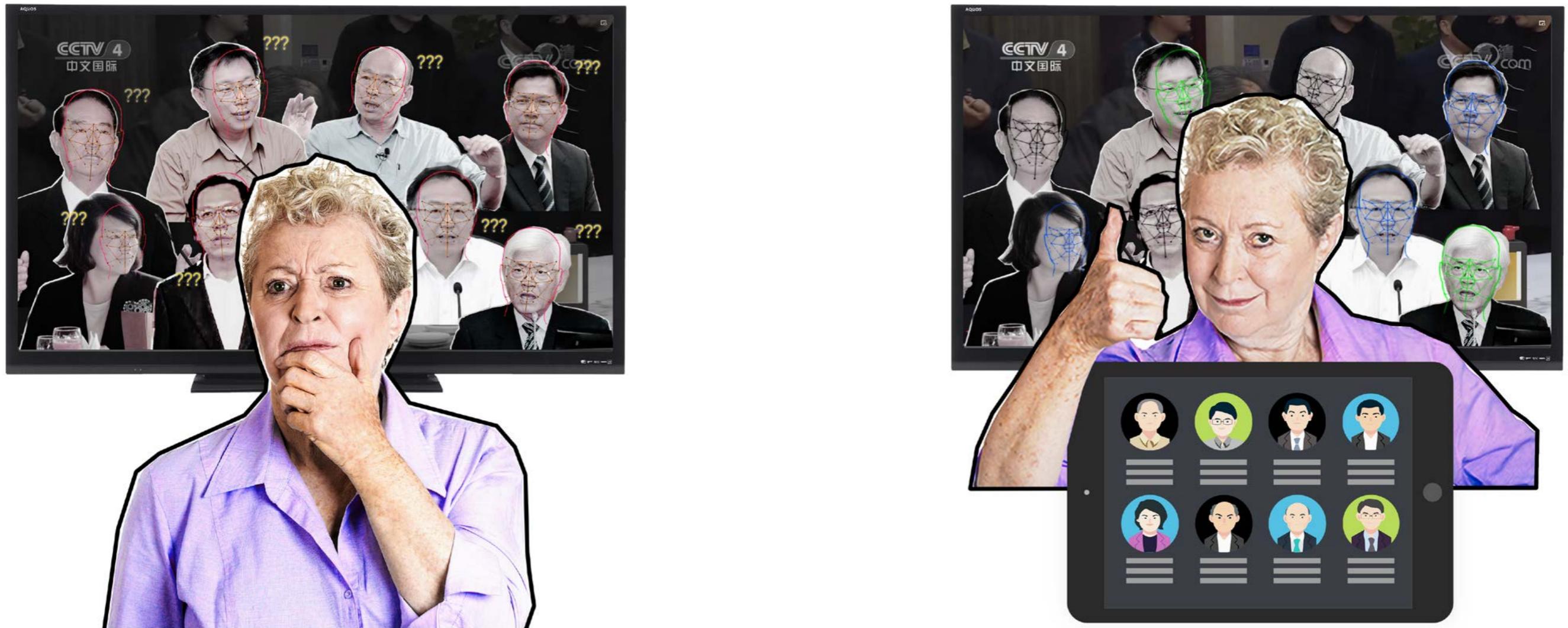
integrate and reform courtyards



repair and renovate residences







[05]

"Cross-Strait" is a program for TV viewers in mainland China. Taiwan "nine-in-one" election has been an important part of its focus. However, many mainland viewers do not know much about Taiwan's political figures and may feel confused when watching the news, not being able to understand it well.

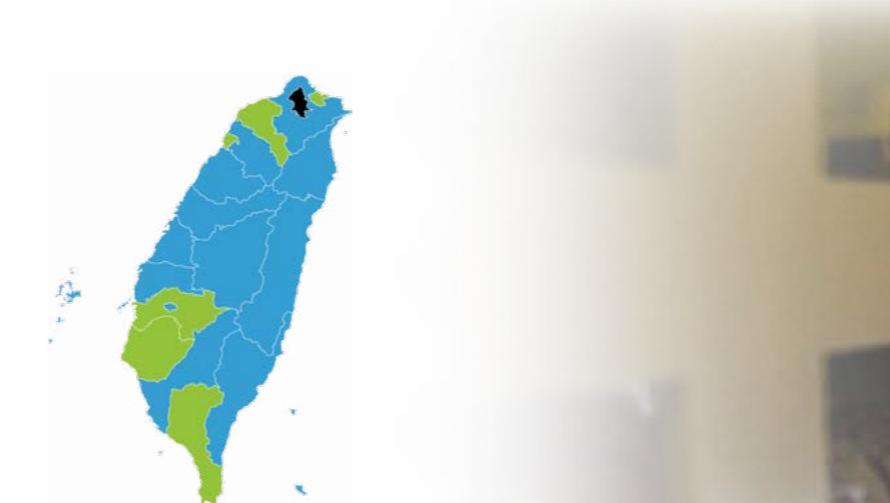
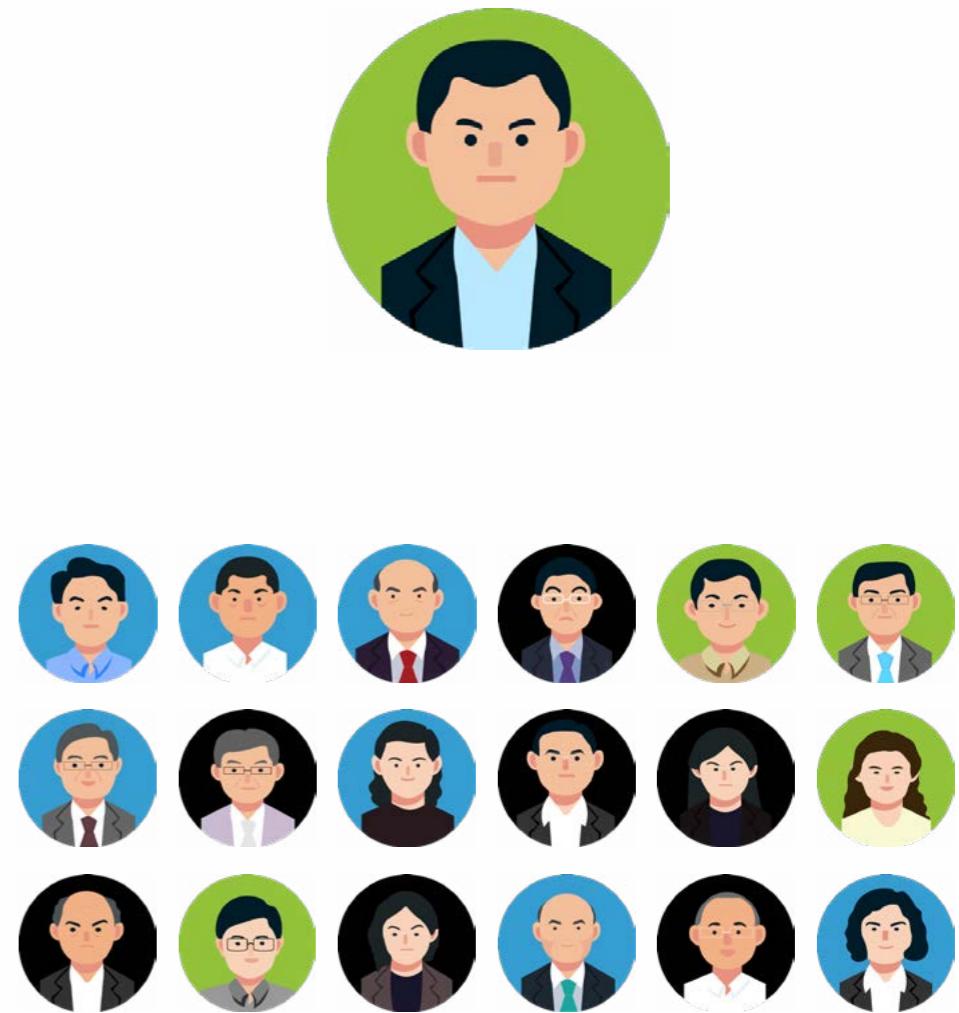
CROSSING THE STRAIT

We created a second screen tool on mobile device that allows one to conveniently and visually learn about the people running for office while watching TV, so that mainland viewers can have a better understanding of Taiwan's political activities.

Teamwork, June 2019

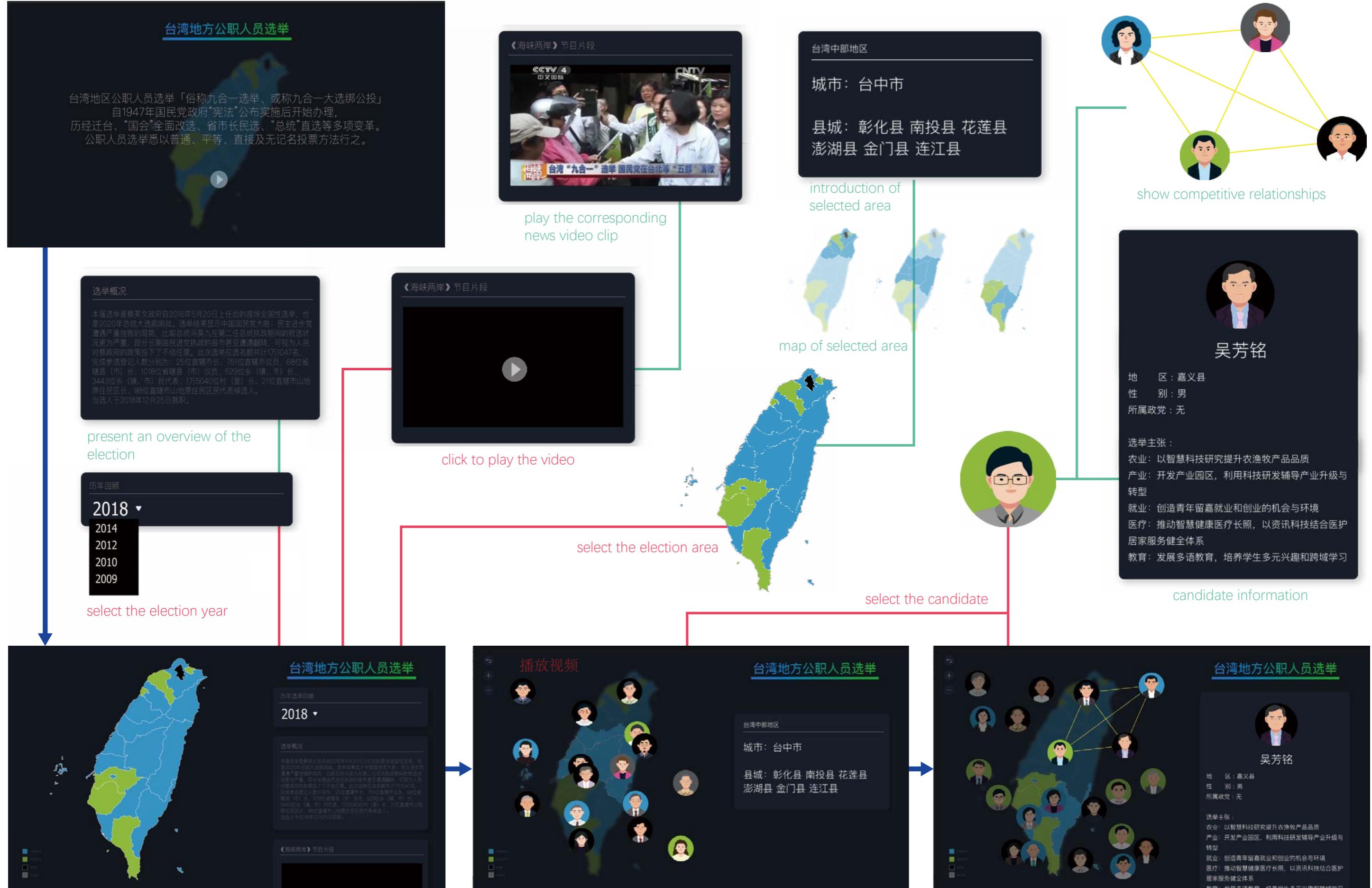
Team member: WANG Yuechen (design, program), HUANG Jing (design, illustrate), WANG Yidi (illustrate, collect information), LIU Weilian (collect information, direct video)

Instructors: Assoc Prof. LIU Huifen, LI Jing



app prototype

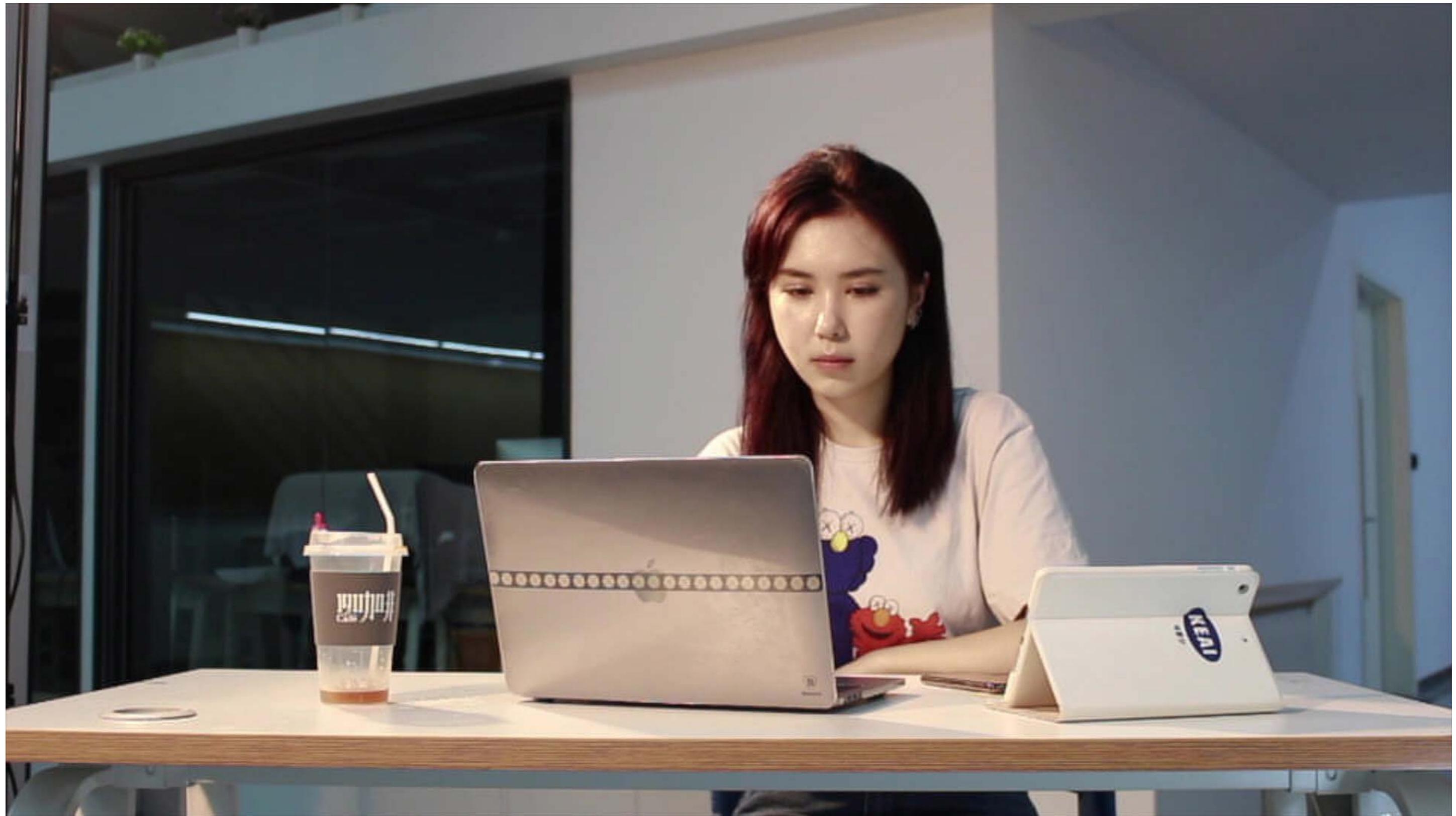
logic of interact





video

<https://vimeo.com/496370320>



[]

OTHER WORKS

parametric design

An algorithm for generating customized storage furniture based on space conditions.

Career work, 2019

Instructors: DU Dikang, CHEN Huarong

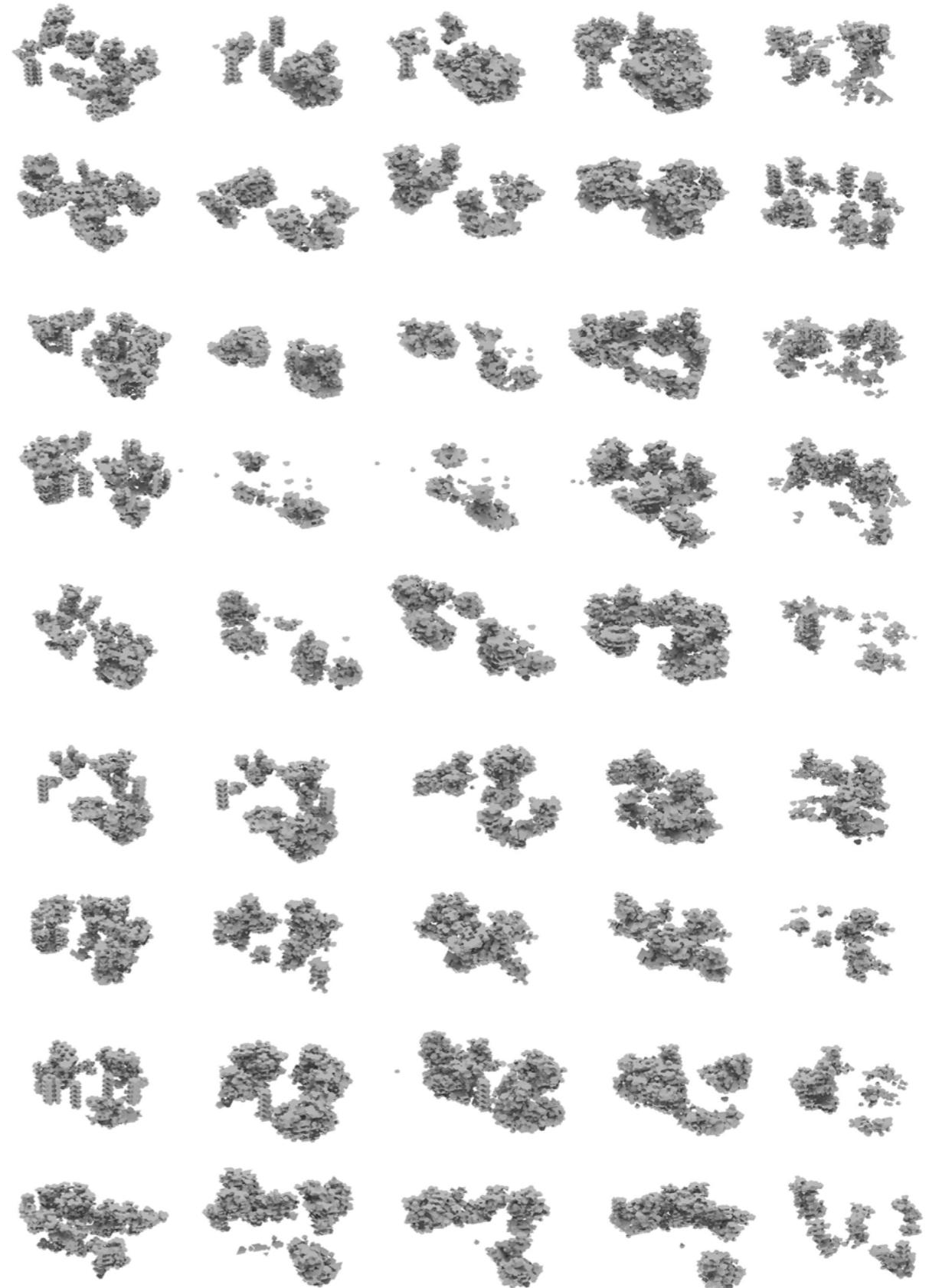


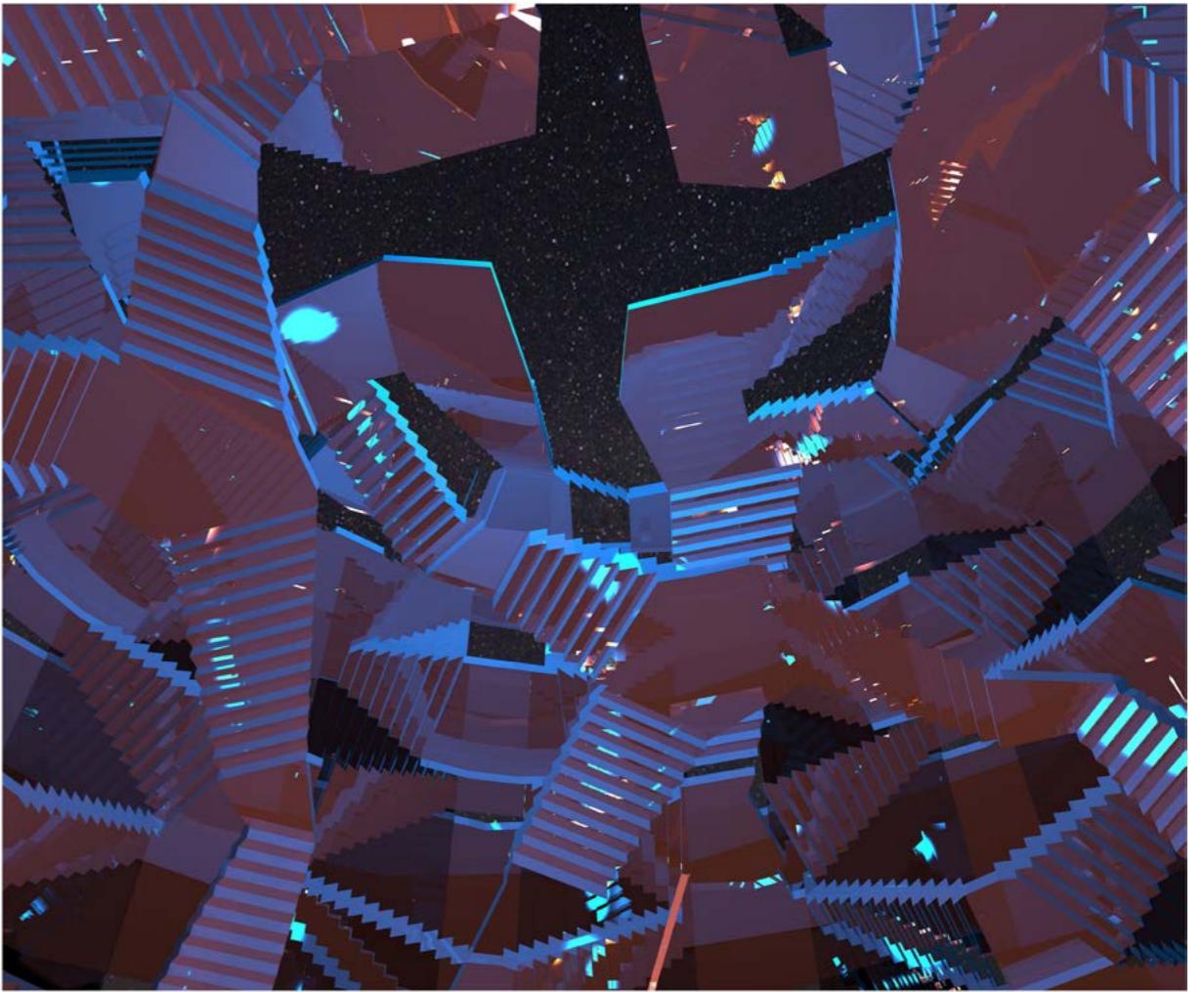
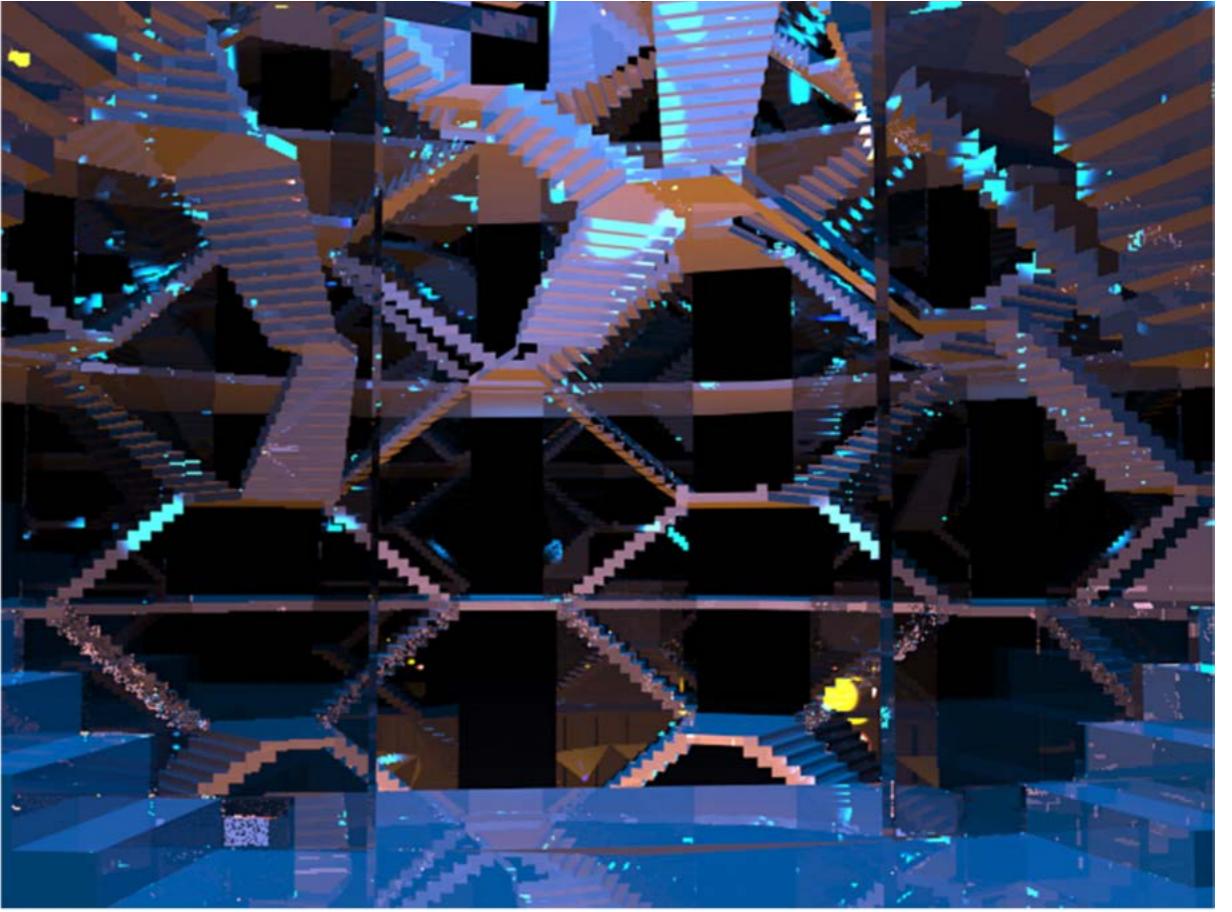
cellular automata generation

generate various shapes by changing the input image

Course project, 2018

Instructor: Assoc Prof. HUANG Weixin





used to be a design of museum

Course project, 2018

Instructor: Assoc Prof. ZHOU Rong

3D modeling and rendering

animation

Here are some animation projects I attended as a painter.



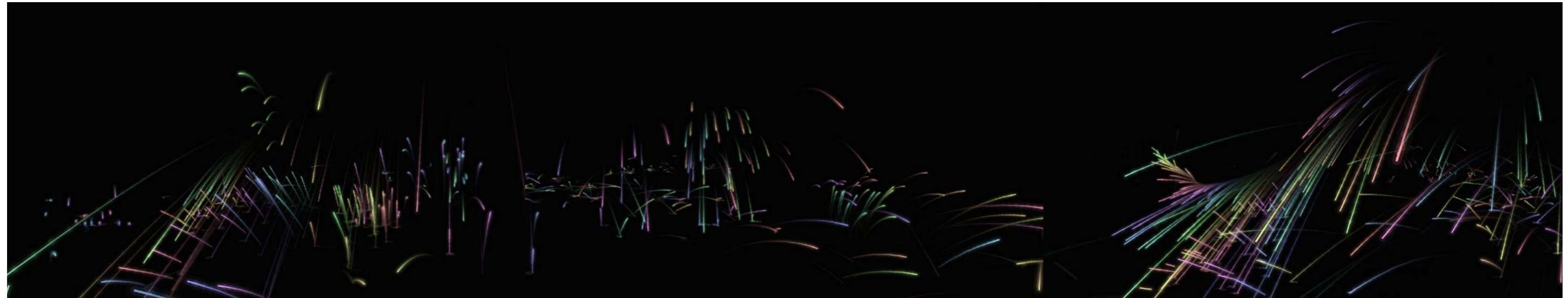
Mouse Banquet by XIANG Bingxue



Aqua by LIU Zihan



At the Lively Bazaar by JING Qiuyu



A bouncing light game, could be played by mouse or Kinect. A little project I accomplished while learning *processing*.

<https://www.openprocessing.org/sketch/588790>

game

Thank you, Ran.

[ACKNOWLEDGEMENT]