

JIAXIANG



Experience hometown festivals in virtual reality





Table of Content •

1. Overview
2. Site Map
3. Target Audience
4. Persona
5. Task Flow
6. User Research
7. Design Thinking
8. Competitor Analysis
9. Visual Process
10. UX & Testing
11. Analysis & Conclusion



My Role

Type GameVision Studios Project

Role UX Designer

Tools Figma, Adobe Illustrator, Adobe Photoshop, Unity, Maya

Timespan 1 year



Challenge

“I really want to meet my family members in China during New Year Festival, but I can’t because of COVID-19 lockdown ” – Mike 2020 February

With the world practising self-isolation and social distancing amid the coronavirus pandemic. But staying in can be just as fun and productive as going out, **what if we create an online platform for people to experience local food and festivals**, and then **“what if we can invite our friends and relatives to join family dinner together”**



Project Overview

Jiaxiang is a VR app that lets users experience local cultures and festivals. The goal is to create an online platform for people to share their hometown stories and festivals. Users can invite their friends and family members to join the festivals and meetings.



Inspiration

One of the demo projects in this game is Chinese Spring Festival. The reason for choosing this festival is because it is an important Chinese festival celebrated at the turn of the traditional Lunar Chinese calendar. Chinese families usually gather for annual reunion dinner. It is also traditional for every family to thoroughly clean the house, in order to sweep away any ill-fortune and to make way for incoming good luck. Windows and doors are decorated with red color paper-cuts and couplets with popular themes of “good fortune” or “happiness”, “wealth” and “longevity”. Other activities include lighting firecrackers and giving money in red paper envelopes. One of the most activities is making dumplings for new year’s eve dinner. Based on research, about one third of mainland population, or 500 million Northerners, dumplings feature prominently in the meals celebrating the festival.

There are four main scenes inside the VR project. They are garden welcome scene, market scene, kitchen scene, dining room scene and garden fireworks.



Design Thinking

Based on all the research, a solution comes into my mind. What if we design a game that let users experience Chinese Spring Festival inside VR. Inside the game users can meet family members and friends, enjoy local food, and attend activities in a safe way.

Users can use Oculus Go virtual reality headset to experience Chinese Spring Festival. It saves time and money.

- Experience VR in a cheapest and simplest way
- Meet family members and friends
- Learn local cultures and festivals
- Learn how to make dumplings
- Watch live chinese TV broadcast inside VR



Approach



Framing the problem

- User Research
- Competitive Analysis
- Key Findings



Exploring the solution space

- Brainstorming
- Ideation through sketching



Finding a good solution

- Scoping
- Consideration of constraints
- Scenarios, Storyboards, personas
- Design rationale



Refining the solution

- Wireframing
- Lo-fi prototypes
- Early evaluations
- Mockups/mid-fi prototypes
- Additional evaluations

Survey

[Link To Survey Result](#)

Before I start to design this app. I did a small suvey to ask users' opinions about the app. I want to know if users are interested in visiting places and learning local cultures and festivals inside VR. I randomly asked 38 people to finish the following tasks:

I asked 38 people to finish following tasks by filling a survey form and collect their answers.



63% of the testers are interested in using a VR app to visit their hometowns



36% of the testers choose Google Cardboard to purchase



68% of the testers choose to meet family members, friends, enjoy local food and attend events inside a VR app.

Competitive Analysis



Spaces

<https://www.facebook.com/spaces>

Seller:

Facebook

Device:

Oculus Rift or HTC Vive

Description:

Facebook Spaces is the social media company's virtual reality (VR) application that allows users to interact in a virtual environment as if they were in the same room.

Features:

1. Customize your avatar
2. Go live in VR and express yourself
3. Connect with your friends
4. Hang out with friends and share memories
5. Draw 3D objects and express creativity
6. Capture your fun moments



Competitive Analysis



The Sims

<https://www.ea.com/games/the-sims>

Seller:

Electronic Arts Inc.

Device:

XBOX one and PS 4

Description:

The Sims 4 is the fourth major title in life simulation video game series. The Sims, developed by Maxis and The Sims Studio and published by Electronic Arts. The Sims 4 was originally announced on May 6, 2013, and was released in North America on September 2, 2014 for Microsoft Windows.

Features:

1. Create your Sims
2. Design your house
3. Pursue careers
4. Develop skills
5. Make friends
6. Build relationships
7. Create cats and dogs
8. Bonds with your pets
9. Become a vet & run a clinic



Competitive Matrix

Device/Platform	Spaces	The Sims	Jiaxiang
Oculus Rift, HTC, VIVE		Playstation 4, Xbox One	Google Cardboard, IOS
Features			
Customize Your Avatar	✓	✓	
Go live in VR	✓		✓
Switch scene	✓	✓	✓
Make friends	✓	✓	
Design your house		✓	
Pursue career		✓	
Raise pets		✓	
Run your own business		✓	
Share memories with others	✓	✓	✓
Learn how to make local food			
Experience local food, festival			✓
Rating	✓	✓	✓





Key Findings •

would be willing to share hometown festivals and food with others

considered fun, safe and efficient to invite friends and family members to join festivals using VR

would be willing to purchase affordable, high quality VR devices to gain experience



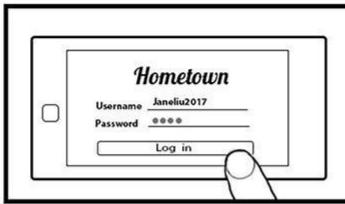
Brainstorming

In this stage, I conducted the following two methods: **brainstorming** and **ideation through sketch**. This helped me a lot in expanding my ideas and developing creativity.

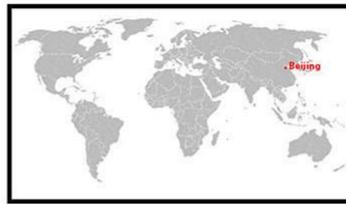
After the brainstorming session, I completed ideation through sketch: I sketched possible solutions to my design problems, which allowed me to think in different contexts where my system could be used to inspire new, creative ideas.

After, I sketched **user storyboard** to help convey our design problem and solution.

Storyboard



1. Log in to Hometown VR app



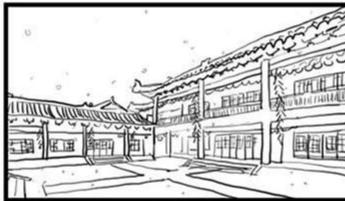
2. Choose Beijing, China from the map

Festivals
Spring Festival
Mid-autumn Day
Dragon boat

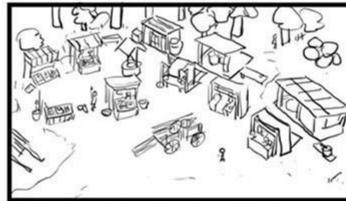
Sightseeings
Welcome to Beijing

Food
Shopping Center

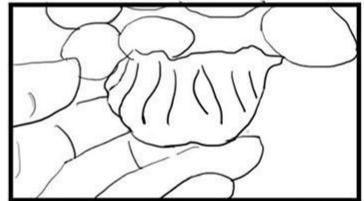
3. Choose Beijing Festivals > Spring Festival



4. Enter the scene and get the task (Buy some dumpling ingredients)



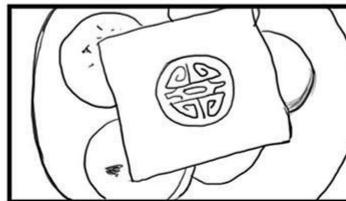
5. Go to the market and look for pork, leek, soy source



6. Bring the ingredients to the kitchen and make dumplings



7. Have dinner together with other people



8. Get and receive pocket money from others

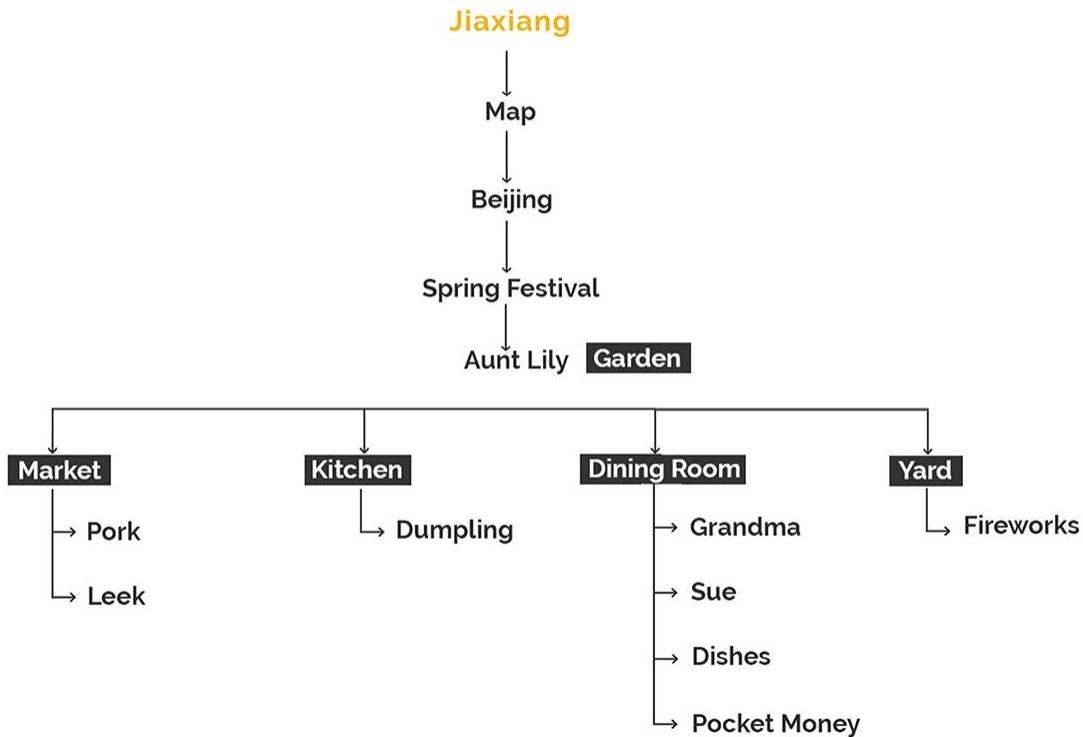


9. Go to the yard to watch fireworks. Game end. Rate the scene.





SITE MAP



GAME MAP



Market

Meeting Room

Dining Room

Kitchen

Study Room

Garden Gate

Front Gate



Finding a good solution

I created two **personas** to better understand needs and goals of my users. By using all previous efforts, I solidify **user flow chart** and draw **wireframes**. With lo-fidelity wireframes, I conducted user testings and received precious feedback for design iteration.

Target Audience

- **Primary Target Audience**

Non - Chinese young adults

Age: 20 – 30

Gender: Male and female

Interest: Chinese local festivals, VR, 3D technology, game

Goal: Visit China and understand Chinese culture

Technical Device: IOS smart phone

- **Secondary Target Audience**

Chinese young adults working in foreign countries

Age: 20 – 30

Gender: Male and female

Interest: Chinese local festivals, VR, 3D technology, game, social media, career

Goal: Reexperience local culture and festivals, meet family members and friends

Technical Device: IOS smart phone



Persona 1



Michael RO, 25

Male
Master Degree
Administrative Assistant
Single
San Francisco

Personal Background

Michael was born in San Francisco. He loves Chinese food and movies. Currently he is learning Chinese. He has a Chinese girlfriend from Beijing. However, every year during Spring Festival, his girlfriend feels homesick. She needs to go back to Beijing to see her family members. Michael hasn't been to China before. He really wants to know what happens during Spring Festival and why it is so essential to his girlfriend.

User Scenario

Michael and his girlfriend are going to Beijing, China this upcoming new year during Spring Festival. Michael hasn't been to China before and he really wants to know some local cultures and customs about Chinese New Year. One day he is at home. He downloads a VR app in app store called "Jiaxiang". Then he puts the phone into Google Cardboard. He starts to play with the app. He presses the Google Cardboard button and selects Beijing, China. Then he chooses "New Year Festival". After that he selects garden scene.

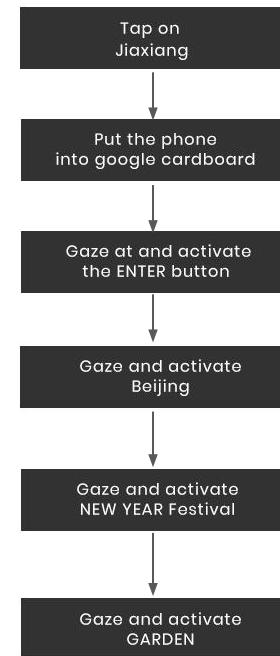
Goal

- Want to visit Beijing with his girlfriend
- Learn Mandarin and Cantonese
- Gain experience about Chinese festivals

Frustration

- Not fully understand Chinese festival culture
- Hard to learn Chinese

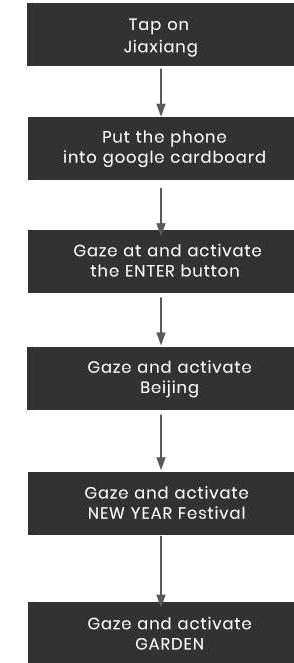
Task Flow 1





Task Flow 1

Michael downloads the app. He opens the app, and puts on the Google cardboard, and opens the main menu, and navigates to the Garden Scene





Task Flow 2

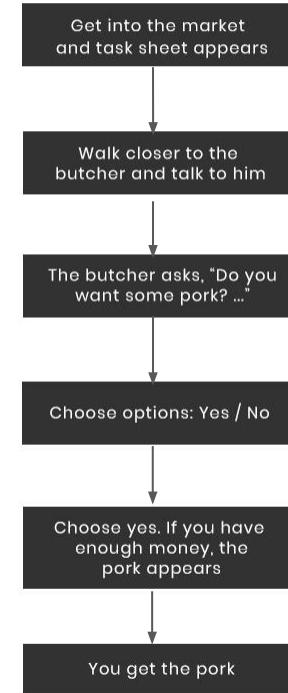
Michael gets his task to find the door to the Market from Aunt Lily. And also gets money to buy things in the Market





Task Flow 3

Michael gets the task to buy Pork and Leek. He buys the pork and leek and then goes to the dining room.



Persona 2



Sue Liu, 27

Female
Master Degree
Computer Science
Single
China

Personal Background

Sue is 27 years old. Chinese international student working in San Francisco. She is very busy everyday dealing with her projects. She works from 9AM to 12AM. One day she is taking a rest in the office after she finishes her work. She feels very exhausted and lonely. She really wants to go back to her hometown Beijing during Spring Festival . However, after she checks her calendar. She finds that she doesn't have enough time for vacation during February. She is very disappointed.

User Scenario

Sue doesn't have vacation during Spring Festival. She is busy with her work. But she really misses the local food and fireworks in her hometown Beijing. She downloads a VR app called *Jiaxiang*. She can't wait to see her family members, the food and fireworks inside VR. She gets into the dining room and meets people there. She gains pocket money from them. Then the fireworks' sound comes up and she walks outside the door and watches fireworks in the garden.

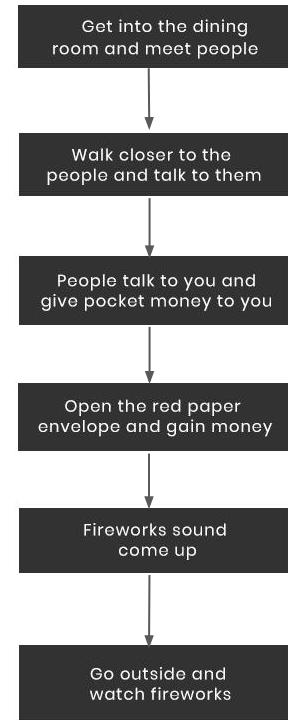
Goal

- Become a manager in the company
- Have more vacation time in the future
- Have higher salary

Frustration

- Not enough time to visit friends and family members
- Feel lonely and isolated in a foreign country

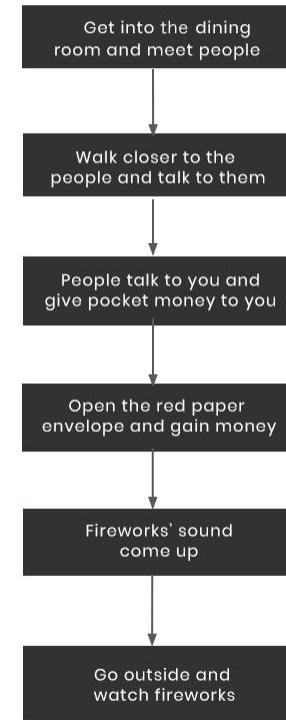
Task Flow 4





Task Flow 4

Sue gets into the dining room and meets people. They wishes her "Happy New Year." She gets pocket money and then watches fireworks in the garden.



video Walkthroughs



Garden

[Link To GardenVideo](#)



Market *

[Link To MarketVideo](#)



DiningRoom

[Link To DiningRoom](#)



Chinese Spring Festival

customs & Activities



House cleaning & Decorating



Make Dumplings



Watch live broadcast features music,
dance, comedy, opera and so on



Family Reunion Dinner

Giving Red Envelopes



Folk shows, Temple Fairs



Sending Greeting



Fireworks

Visual Process



Image Board



#ff3426

#fe5a5

#d79d28

#68daff

Moodboard



Visual Process



Name List:

1.Hometown

2.Festival VR

3. Belong

4.Feast

5.Explorer

Tagline:

1. Experience festivals in a simple, fun and educational way

2. Experience hometown festivals in a simple way

Icon Design:



VR Font Design:

VR

VR

VR

VR

VR

VR

Logo Design:



Font Design:

家

家

家

HOMETOWN
Permanent

Hometown
Merienda

Hometown
Raleway

Iterations



Before



After



① Add navigation bar and icons

② Change the butcher's style to be more asian

③ Add the pork's price on the board to be easily seen

④ Add lighting and bloom effect in the dining room

⑤ Add fireworks visual effects in unity



Logo Design

UI Kit

TYPOGRAPHY

JIA XIANG

Title Permanent Marker 20pt

Get pork and leek

Task Sentence Helvetica Round 20pt

Task1

Task Title Yatra One Regular 14pt

Dining Room

Room Title PT Sans 14pt

AUNT LILY

Character Name Permanent 12pt

Welcome to Beijing Garden...

Task sentence PT Sans 12pt

Chinese New Year, also known as Spring Festival in modern China, is an important...

Paragraph sentence PT Sans 6pt

COLORS

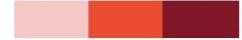
Green



Yellow



Red



Black



Avatars



Garden



Market



Kitchen



Dining Room



Credits

LIST

- New Year Festival
- Mid Autumn
- Red Leaf
- Double Seventh

ICONS



BUTTONS

Normal

ENTER

Buy

No, thanks

WINDOWS



UX & Testing Process



Date	Method	Tester	Result	Documents
Fall 2016	Survey X 3	👤 X 38	Testers are interested in using Google Cardboard to meet family members, friends, Enjoy local food and attend events inside VR.	These Project 1st Round User Survey
Fall 2016	Interview	👤 X 7	Testers are interested in reexperiencing foods, places and fun moments with family groups Inside VR. They are willing to share these Moments with others.	Interview
Spring 2016	Paper prototype	👤 X 6	Testers are interested in talking to characters inside VR. They like 2D user friendly characters Design better.	Paper Prototypes Result
Fall 2018	A/B Testing (Typeface, Dialogue window)	👤 X 10	Testers like transparent black background with white test overlay at the front. For the dialogue Windows, they prefer Asian style script combined with Sans-Serif, such as Helvetica.	Dialogue Window Testing Summary Typeface Design Testing Summary
Fall 2018	VR prototype	👤 X 5	Testers like the overall design. They suggest the navigation icons to be consistent and simplified. They like the animated arrow indicators, which help them to find items easily in the market scene.	VR Prototype Testing

Technical Process



Step 1

- Set up 2D & 3D assets
- Prepare audio
- Particle effects
- Lighting
- Set up GVR Demo



Step 2

- Event trigger (teleport to different scene, open the door)
- Instantiate objects
- Calculate objects numbers & Money
- Look walk function
- Audio scripting



Step 3

- Export unity scene to IOS mobile platform
- Use Google Cardboard to view the scene and click the button to trigger the events inside the app



Technology Used

PROJECT FORM

Unity Mobile App

VISUAL

Adobe Photoshop CC 2018

Adobe Illustrator CC 2018

Sketch Version 51.3

VIDEO

Adobe After Effects CC 2018

QuickTime Player

CODING

Unity C#

3D Software

Unity

Maya

3D Max

DEVICE

Google Cardboard

iPhone

MacBook Pro

A 3D rendering of a traditional Chinese garden at night. The scene features traditional buildings with dark wooden frames and red lanterns hanging from eaves. A paved walkway leads through the garden, illuminated by the warm glow of the lanterns and the ambient light from within the buildings. The sky is dark with a few stars visible.

Conclusions

- Interface design challenges inside VR
- Motion sickness challenges (Look walk and camera movement control)
- Lighting & rendering inside unity
- Indicators inside VR
- The importance of audio inside VR

ANALYSIS & CONCLUSIONS

Goal

More and more foreigners visit China each year. If Hongkong and Macau are included, China is the world's number one tourist destination. Jiaxiang is a VR app that lets users experience local cultures and festivals. The goal is to create an online platform for tourism and people who want to share their hometown information. Foreign tourists can use this app to explore different cities and learn local festivals before they come. Chinese users can invite their family members, friends and lovers to re-experience the festivals together. I believe this platform is meaningful. It also saves time and money for users who don't have enough time to travel.

UX Challenges

I have done a lot of the user testing. Inside VR, substituted environment and objects surround the user, allowing them to look around them in all directions, just as they can in real life. The most challenging issue in UX is to let users feel comfortable inside VR. All the interfaces and menus should be easily seen and found by the users. Users don't feel comfortable to view the text that are too small, pixelated, or hard to read. Also users are too lazy to turn back and forth to find menus. It requires me to create easily recognizable, user-friendly and simplified interfaces with solid colors.

Motion Sickness Challenges

"VR motion sickness happens when your eyes tell your brain you're moving around in a VR environment, but your body feels like it's sitting in a chair or standing still. If you're prone to the problem, these conflicting inputs cause you to feel miserable. Specifically, you might experience sensations like nausea, dizziness, headaches, sweating, excessive salivating, or all of the above. Even worse, these symptoms can continue for hours after you take off the headset and compound together" (par.1). "With 25% to 40% of consumers saying they experience motion sickness, this industry's projected growth to \$48.5 billion in sales by 2025, according to Grand View Research, may be off-balance" (par.2). I also have this kind of experience when I set up my camera movement inside VR. I have set up camera animation inside unity to let users walk from garden to kitchen. My testers felt very dizzy when they looked though the moving camera. They couldn't suffer more than 5 seconds. So I delete all the camera movements and use teleport technique. When users gaze at the location indicator, they can move to another scene. They can stand still. Inside google cardboard, it's better to let the camera stay still or take some breaks when it moves, so users will feel more comfortable. In my project, I also used look walk technique to let users take a break when they move. When they tilt their head down, they will move forward. When they tilt up again, it will automatically stop moving. So users can control the speed and take a break in the middle.

ANALYSIS & CONCLUSIONS

Lighting & rendering inside unity

I have a day scene and a night scene in my project. Compared to the day scene, the night scene has many more challenges. In New Year's eve, people decorated their houses with red lanterns. Each red lantern will need some light effect. So I put an orange point light inside each lantern to simulate the real color of the light. Also inside the dining room, there's a chandelier. I also put a bright yellow point light to simulate the real light effect. For the rendering part, I used a plug-in called post processing. It includes a set of image effects into a single post-process pipeline. It allows users to correct color and add bloom, fog effects, ambient occlusion after lighting. The result is amazing. It works very well in the night scene.

Indicators inside VR

I have done a couple of interviews and user testing before. Some of the users have trouble looking for the door and objects. So they had difficulties finishing the task in each scene because they couldn't find the right object. For instance, in my market scene, users have been assigned a task to buy pork and get the leek before they can go back to the house. Some of my testers have trouble to look for the leek, because the leek is located in a corner. As a result, I put an animated arrow to remind them of the location of the leek. Also I adjusted the leek's position to move closer to users' view area. Users feel much better than before. The animated indicators help a lot. Because of that, I put animated indicators in the exit of each scene to remind users to interact with them.

The importance of audio inside VR

Sound makes a big part inside the game. If you play with no sound, the game loses a lot. Users feel less interesting if the characters inside can't talk with them. They also feel less immersed in the New Year's atmosphere if they can't hear the New Year's background music and fireworks' sound.

The Future of Jiaxiang

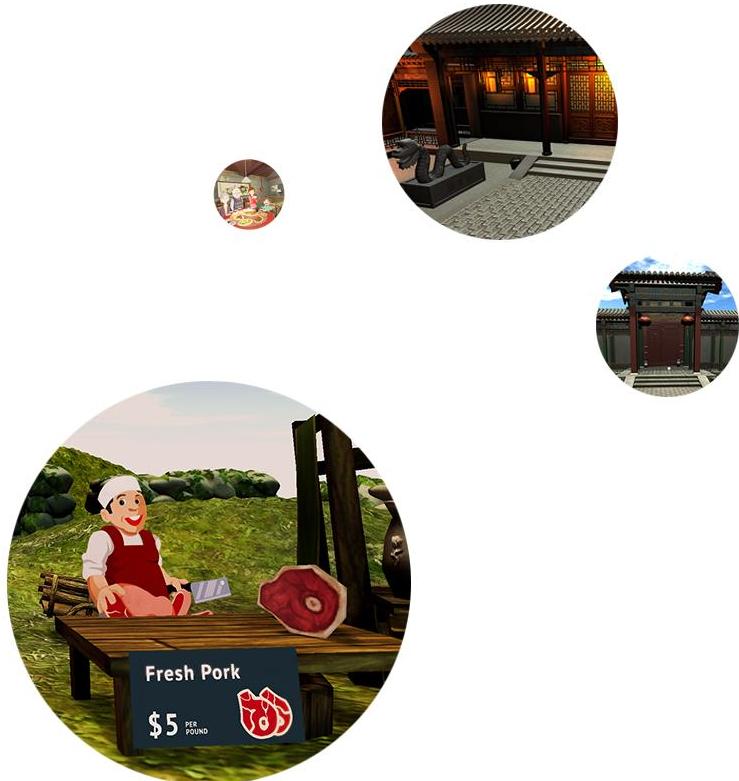
"Virtual, augmented and mixed reality technologies are drawing millions of dollars in investments, and are on pace to be a \$150 billion market by 2020. Moreover, these immersive technologies are poised to transform entertainment and to dramatically influence industries as diverse as healthcare, tourism, sports, education and manufacturing. In fact, NASA is using the technologies to train astronauts and to share a walk on Mars" (par.2).

Jiaxiang will keep evolving and it will never stop. In the future users will also be able to experience the past or the futuristic moments inside VR. I wish one day everyone can easily buy a VR headset, meet their family members, interact with their friends, lovers, explore places and experience fun moments with no barriers inside VR.

Project Link

[Link to my journals](#)

[Link to Jiaxiang webpage](#)



Bibliography

- Google has shipped 10M Cardboard VR viewers
- Virtual Reality Demographics
- Ages & VR Headsets
- Google cardboard for kids
- 16 of the coolest apps for Cardboard, Google's DIY virtual reality headset
- China Tourism Facts & Figures
- Is China attracting foreign visitors?
- Chinese as a second language growing in popularity
- UX in Google Earth VR Unity Tutorials
- Google VR SDK for Unity
- Spring Festival Facts



Thank you

