Charles Hu

Design For The Real World

Prototyper

Traveler

Presenter

Designer

Compere

Athlete

Entrepreneur

Teacher

Researcher

Who am I?

How did I get into design?

Who am I relative to you?

Who will I become?

Who am I?

How did I get into design?

Who am I relative to you?

Who will I become?

Creative Problem Solver

Who am I?

How did I get into design?

Who am I relative to you?

Who will I become?

Empathy

InsighT Glasses

Who am I?

How did I get into design?

Who am I relative to you?

Who will I become?

My Mission

“To empower more people to enjoy a better life through accessible information products.”

Buydar

Future Retail Experience

Individual Project

My Role: UX Designer, Product Strategist, Choice Architect

http://www.xushenghu.com/copy-of-shijing

Fluence

Personal Informatics Design/
Design for Behavior Change

My Role: UX Designer

MakeCents

Distributed Blockchain Platform for
Simple, Everyday Payments

My Role: UX Designer

9:41
Whole Foods
Grocery
12:00 05/08/2018
-12
+3
Transaction Pending
Today
Bubble Tea
Drink
11:50 05/08/2018
-5.5
+3
Securely Completed
Uncle's
Bakery
10:30 05/08/2018
-10
+3
Securely Completed
Walgreens
Cash Change
09:05 05/08/2018
+3.4
+3
Pay Now
Transactions

9:41
Filters
Type
Money-in
Money-out
Usage
Restaurant
Grocery
Fashion
Others
Time
Today
Last Week
Last Month
Last 90 days
Reset
OK

9:41
Cancel
I
the
I'm
q w e r t y u i o p
a s d f g h j k l
z x c v b n m
123
space
return

9:41
Whole Foods
Grocery
12:00 05/08/2018
You Paid $12
in 0.01 Second
Transaction Expected to be Validated in 3 minutes
How does this work?
Payment Details
Method Scan QR Code
To Whole Foods SOHO
Amount - $15
Tax - $0.9
MakeCents Promotion + $3.9
Bank Processing Fee FREE
Account Maintenance Fee FREE
Risk of Identity Theft NONE
Total - $12
Rewards +3
Review
Help
Redeem Your 20% Return Offer Now!

NAIL

Homemade Fanshion

Household Nail Printer

My Role: Product Designer and Prototyper

https://vimeo.com/241634573

Homemade Genius

Homeschool Learning Experience

Group Project

My Work: UX Research, Affinity Diagraming, Concept Generation, Wireframing, Hi-Fi Prototyping, Testing

What is Homemade Genius

Homemade Genius is a web app that aims to provide a better homeschooling experience. It helps homeschoolers easily find learning resources that best fit, plan and share their own courses with others in the community, and keep a detailed record of the learning processes.

Introduction

https://youtu.be/WEDMW9wmDbA

Secondary Research

The number of homeschoolers has increased **53%** in the past ten years. As of 2016, there were about 2.3 million homeschoolers in the United States (Ray, 2015). According to our preliminary research, we found that most studies casted doubts on the following issues:

- **Socializing skills for homeschool kids**
- **Education quality**
- **Efficiency**

Carrying with these ideas, our group reached out to a total of eight individuals from four different states, hoping to corroborate the literatures and gain more insights into the homeschooling community.

Community is crucial for us as homeschoolers.
I have to go to multiple websites for resource when planning curiculum.
My son is so into Ancient Rome, but he cannot find other kids to share his passion.
We make sure our kids have the opportunity to interact with people from all ages.
My daughter has reading disability and we were struggling to find learning resource that best fit her.
We go to co-op classes regularly, where we could meet other homeschool parents and share information.

Problem

Community plays an important role for homeschool families, in which homeschool parents can share resources and suggestions with each other. Yet local communities are most too small to find ideal resources.

Finding learning resources is problematic for some homeschoolers for that it is often time-consuming to locate the right fits

The current way for homeschoolers to **find kids that share similar interests** is through Facebook posting or in-person communications in the local homeschool community, which could be constrained sometimes and is not particularly efficient.

Ideation

An **online community** that allows **resource sharing and curriculum building**. A platform that parents use to build and manage the learning path for their homeschooling kids.

Without geological limitations

Personal Interaction

Github

Find people similar to me

A community

A mobile app or a website?

Udemy

Easy to find resources

Customization

Privacy and safety

For parents or for kids?

Solution

Curriculum Exchange

Homemade Genius is a platform where homeschoolers' guardians could easily write learning plans and share curriculum with other members in the community. They could refer to others' curriculum and incorporate these resources into their own ones.

Peer Learning

Homeschoolers' academic needs cannot solely satised by their guardians. Homemade Genius helps them overcome the geographical barriers and interact with other learners with similar interests.

Keep Record for Future

Now, homeschoolers' guardians rely on their community and spend a lot of time doing research when they enter the community. Homemade Genius would make this much easier by enabling them search other homeschoolers based on location and interests.

Community at A Click Away

Homeschoolers' learning record is valuable for their future success. Homemade Genius could track their learning path condentially and generate transcripts which could be used to apply for universities.

UI Design

Homemade Genius
Discover
My Course
Profile
Popular Courses
Interested Courses
Active User
Relevant Group
Ongoing Courses
Future Courses
Future Courses
Calendar
Detailed Profile
Switch Profile
Interest Area
Setting/Preference

Give You What You Want

Fill your profile and we will recommend courses, people, and groups based on your profile and interests.

Learn from Others and Make Your Own

View other people's course plan and easily borrow it by star it. Adjust it based on your preference and add to your plan.

Build a Community

Easily find people who have similar interests or experience with your kids. Build a community using our chat and discussion features.

Easy to Manage

Manage all your course materials, collected resources in one place. Easily plan the learning path for your kids.

Easy to Manage

Easily find people who have similar interests or experience with your kids. Build a community using our chat and discussion features.

Interaction

Feedback

1 The product should put more focus on the **interaction between users**.
For example, features like chat and comment could create more interaction.`

2 **Privacy** should be protected on our platform.
Avoid information like name and photo. Use avatar and nickname is a better option.

3 For course materials people uploaded, there should be a **rating** feature.
So that people know the quality of the resource. And resources would be self-sustain.

Next Steps

Usability Testing: Validate Assumptions

Collaborate with developers to implement it

是镜

Shijing

Glasses Virtual Try-on

Team Project

My Work: Product Manager, Opportunity Identification, Value Proposition Design, Business Model Design, UI Design, Prototyping, Testing

https://vimeo.com/202723619

Opportunity Identification

Process & Core Methods

Problem Definition

Customer : It's so troublesome when I want to buy a new pair of glasses.

Research Data - What are the problems that glasses customers are faced with?

1. 44.8% Unreasonable Price
   Virtual-high Price, Fluctuant Discount;
   Vague Pricing Standard; Low Performance Cost;
   Hard to distinguish the good from the bad...
2. 38.4% Unprofessional Service
   Lack of Standardization Eyeglasses Prescription;
   Optometry Mistake;
   Irresponsible for Product Quality Problems...
3. 5.7% Disqualified Sanitation Condition
4. 5.1% Misleading Propaganda of Therapeutic Glasses
5. 3.4% A Mess of Counterfeit Products
6. 2.0% Difficulties of Maintenance
7. 0.6% Other

Joint investigation by Minister of Public Health and Minister of Education of China suggests: over 400 million Chinese people have shortsightedness; the shortsightedness rate among Chinese teenagers is 50%~60%. The market demand of eyeglasses is estimated to be over 120 million pairs, which indicates an industry value of 4.5 billion USD.

Product Price of A Typical Glasses Brand

Competitive Analysis

Brand	Object	Assumption	Strategy	Capability	Benchmark
J!NS	To cover all classifications in the middle-end market	Customers have diverse demands and value cost performance	Multiple product lines & Own Brand & Components simplification	Excellent design strength & International marketing strength	Flat process from factory to customers and building its own brand worth learning.
	To increase sales of physical stores	Customers rely on special offers information of online channels	Online to Offline by providing coupons on group-buying sites	Mature store management & strong suppliers support	Marketing communication through new media worth learning
	To increase sales of online channels	Customers value try-on service of physical stores much	Search glasses online and try them on at stores & At-home optometry service	To build a nationwide chain store network	There is a huge price paid when we build a nationwide chain store network.
	To promote its new Internet glasses brand	Middle-end Customers are willing to pay for high-performance services	Pay a high fee to get at-home try-on service in return	Excellent design strength & thoughtful service	A new but high-price brand don't cater to middle-end customers' interest
淘	To cut rent costs and get profitable	Customers are price-sensitive and eager to buy high-end	Dump knock-off glasses at below-market price	Fast coping, low price	Knock-off products cannot foster customer loyalty

Strategy Positioning

Ideation

Shijing greatly reduces labor and rent costs by building a new Internet glasses brand, compared with physical stores; AR Glasses Try-on technology is used to make up for the shortcome of traditional e-commerce platforms, namely no try-on experience; Shijing customized suitable glasses to users based on face recognition, and provides lifetime reliable services.

Value Proposition

Customer Profile

The set of customer characteristics that we assume, observe, and verify in the market.

Target Customers 1

Students and young professionals aged at 16-30 who are sensitive to price and have a open mind for trying new things.

2 Map Customer profile

Visualize what matters to our target customer in a structured and detailed way based on research. It breaks the customer down into its jobs, pains and gains.

Prioritization 3

Ranking jobs, pains and gains in order to design value proposition that address things our customer really care about.

Jobs Importance

Rank jobs according to their importance to customers.

+

Important

- Buy suitable glasses
- Comparing offerse
- Seeking others' suggestions
- Posting product reviews
- Reselling products
- Look trendy among peers
- Deciding which one to buy
- Taking fast delivery
- Participating in design co-creation

−

Insignificant

Pain Severity

Rank pains according to how extreme they are in the customers' eyes.

+

Extreme

- Going to eyeglasses stores takes
- Fear of online shopping discrepancy
- No one knows product brand
- Look funny wearing glases
- Few products details on the small screen
- Lack of budget
- Overwhelming information makes it hard
- Downloading an app takes up storage
- Unprofessional eyeglasses prescription
- Look ugly using Try-on mode at night

−

Moderate

Gain Relevance

Rank gains according to how essential they are in the customers' eyes.

+

Essential

- Get glasses as conveniently as a ticket
- See real-time effects of actually owning
- Seem to have a unique taste
- Easy to return or change products
- At home prescription & maintenance
- VR wearing
- Low price good quality
- Tell me which one suits me bet-
- Feeling of freshness
- Sense of safety
- Low price luxury brand

−

Nice to have

Value Proposition - Value Map

The set of value proposition benefits that we design to attract customers

Products & Services

These helps our customers complete either functional, social, or emotional jobs or helps them satisfy basic needs.

+

Essential

- Fashion glasses
- Customized recommendation
- Lifetime after-sales service
- View & post reviews
- Online shopping platform
- Free online & at-home try-on
- Easy Comparison page
- Share products information

−

Nice to have

Pain Relievers

They explicitly outline how to eliminate or reduce some things that annoy our customers before, during, or after they are trying to complete a job.

+

Essential

- Easily buy glasses online
- See real time try-on image
- Wechat Mini Program doesn't re-
- Recommend hospitals to get a pre-
- Lower price than that of physical stores
- Upload images to try on
- Limited information (more images
- Free deivery

−

Nice to have

Gain Creators

They explicitly outline how to produce outcomes that our customers expect, desire, or would be surprised by.

+

Essential

- Glasses recommendation based on
- Try on 3 pairs of glasses
- Compare try-on effects of products
- Updated designers' suggestion
- Free maintenance service after

−

Nice to have

Validation - Problem-Solution Fit

Searching for Fit is the process of validating products and services that meet jobs, pains, and gains that customers really care about. Three stages: Problem-Solution Fit, Product-Market Fit,Business Model Fit

Addressed

Not Addressed

Validation - Product Market Fit

During this second phase, we strived to validate or invalidate the assumptions underlying our value proposition. We found evidence that our products and services, pain relievers, and gain creators were actually creating customer value and getting traction in the market.

Core Assumptions

Customers are sensitive to outrageous price at glasses stores.

With AR Try-on, customers believe that online glasses shopping is more convenient than in-store shopping.

Minimum Viable Product

Landing Page through *Wechat Moments*

Through Wechat, the most far-reaching social media in China, we built our landing page describing the value proposition of our product and service to figure out if our potential customers are interested in it.

Call For Action: They needed to leave their phone number to get coupons.

Wizard of Oz through *Wechat Media Platform*

We used Wechat Media Platform as front that looked like a real working value proposition and manually carried out the AR Try-on service.

We would deal with the portaits the potential customers sent and send pictures with glasses back.

Result

0 Code

0 Money

1 Week

524 Potential customers viewed the landing page

41% Potential customers left phone number to get a coupon

27% Potential customers tried fake AR Try-on service

69% Non-negative comments

Service Process Design

Validation - Business Model Fit

Key Partners

- Glasses factories
- Other glasses brands selected to sale on the platform
- Delivery companies
- New media
- Web forum leaders
- On-campus organizations

Key Activities

- Design glasses
- Provide customized glasses shopping solutions with AR try-on experience
- Lifetime aftersales services
- Introduce and promote other selected brands

Key Resources

- AR glasses try-on technology
- Young team members with insights on young customers' needs
- Valuable relationship with glasses suppliers

Value Propositions

Online glasses-shopping platform with high performance cost ratio products, customized recommendation and real-time try-on experience.

Customer Relationships

Automated service through mobile APP

Channels

- Social media : Wechat, Weibo, etc.
- On-campus promotion activities
- Web forums of health, education and technology
- Resources from partners

Customer Segments

Students and young professionals aged at 16-30 who are sensitive to price and have a open mind for trying new things.

Cost Structure

- Software development and maintenance
- Brand and products design
- Manufacturing
- Transportation and storage

Revenue Streams

- Glasses and accessories sales
- Subscription upgrade
- Other glasses brands' sales brokerage
- Value-added services

Product Development

Information Architecture

User Flow Sketch & APP UI

Scanning

Try On

Comparison

Product Development

Development Framework

Even though the interface fluency of the Wechat Mini Program was poorer than that of the native app, benefits like no download requirement, less development time, the social communication nature of Wechat made us believe the Wechat Mini Program was a perfect choice for us a start-up team and our vertical low-frequency service.

	Native APP	Hybrid APP	Web APP	Wechat Mini Program
Interface fluency	★	★	★	★
Download requirement	✓	✓	✗	✗
Development time	●	◒	○	◒
New user cost	●	●	◒	◒
Operations cost	●	●	◒	◒
Boundedness	Review from App Store/ Google Play	Review from App Store/ Google Play	Only works in browsers	Review from Wechat
Others	Suitable for high-frequency or complex services			Suitable for low-frequency or vertical services

Key Algorithm

Product Development

Tests & Iteration

Problem One

Users spent a lot of time comparing glasses to make a choice by iteratively going back to previous glasses they had viewed, because the Try On page displayed the effect of only one pair of glasses.

Solution

We redesigned the cart: users could add the glasses they like to the cart, then use Easy Comparison to see try-on effects of all the glasses at the same page and quickly delete those they didn' t like.

A/B Test

To find if our new design would really solve the problem, we compared the time spent on the same task of both the old and new versions though A/B tests.

Version A

Version B

Task
Add 4 pair of glasses you like to the cart and buy one.

Version A
14.6 min on average

Version B
12.1 min on average

Problem Two

The real-time selfie try-on mode required users to take off their glasses for face recognition, but users who had shortsightedness cannot clearly see images without wearing their glasses.

Solution

Besides the real-time selfie try-on mode, we offered another option: "Upload a Photo".

It enabled people who couldn't read without glasses or were in an environment unsuitable for using camera to use the APP.

Other Iteration

We also found when user wanted to share the try-on image using real-time selfie mode, the user would click the share button for times to take a best selfie.

Our solution was to automatically take selfies before user actually clicked the share button. Then the user just had to choose one to share.

Shortly

Working on UX research project, personal informatics design for international students, design consulting for a client.

Short-term

1. Read design blogs/learn from experienced designers + Practice UX design skills in real world projects
2. Study what's beyond interface: product strategy and business, behavioral economics, data driven intelligence, emerging technologies, etc..

Long-term

1. Learn from the best designers and become a better team player
2. Build leadership abilities and learn how to lead diverse team for disruptive innovation
3. Find my next “best day of life”

Here’re more works!

MATCHA ROYAL

SERVICE DESIGN

Team Project

My Work:
Team Leader
Field Research
Service Gap Analysis
Service Proposal Development
Prototyping & Tests

2016

BACKGROUND

Matcha Royal' s Attempt Failed

1. The attempt to transform some of Matcha tea manufacturing lines to industrial tourist attraction met a cold shoulder in the market test.
2. Affiliated Matcha dessert brand Breaker landed itself in trouble getting new customers and increasing sells after a large amount of advertising investment.

The Village' s Threat

1. 80% of young labors have moved to developed cities for a living, leaving children and the elderly behind in the village who can't meet labor demand of the tourist service.
2. With the location of Songliuling Imperial Mausoleums, the village enjoys rich historical culture which is on the edge of extinction and needs to be revived.

Matcha Royal is calling for a change!

Matcha Royal is the largest Matcha tea manufacturer in China, with affiliated Matcha dessert chain stores. It's transforming the village where its tea plantation and manufacturing lines are located to a tourist resort.

RESEARCH

Shadowing

Service Safari

Contextual Interview

STAKEHOLDER

In the visible part, the connection of stakeholders can be found directly. The green lines represent the most direct, frequent and influential value exchanges that need to be enhanced. In the invisible part, dotted lines shows the connection of the value exchanges could be designed to be stronger.
The further from the center, the weaker the connection is.

Julian

25 Male
Magazine Editor
Monthly Income: 15K RMB
Hobby: Travelling, Photographing, Shopping, Dessert

I am a fully independent traveler, because rather than giving a hurried and cursory glance at many attractions with a tour group, I enjoy exploring local culture with friends. I love Matcha drinks and desserts, and it couldn't be better to visit a Matcha featured resort on weekends. Besides, I expect the process of itinerary planning to be more convenient.

"The essential part of traveling is to enjoy the freedom of exploring what is unknown!"

Mrs. Wu

62 Female
Tea Grower
Monthly Income: 1500 RMB
Hobby: Singing, Scissor-cut, Traditional Drama

My job is to pick tea-leaves for Matcha Royal. At home I have to take care of my 8-year-old grandson and do some chores. Both of my sons have moved to big cities and only went back at Spring Festival. I have made many handicrafts with local characteristics but I am not able to sell them.

"If only I can save some money for my grandson to receive good education!"

Wolfgang

20 Male
Service Staff of Matcha Royal
Monthly Income: 3000 RMB
Hobby: Mobile Games, Social Media

I went to make a living in Shanghai when I finished junior high school because there was no opportunity in my village. However the work in Shanghai was so laboursome and stressful, and I couldn't take care of my family. So I went back when I heard a tourist resort was under development.

"With a lack of English and computer skills, I have difficulty managing the check-in system, and thus I cannot solve some of tourists' problems!"

EMPATHY MAP & VALUE PROPOSITION

EVIDENCE	NEED	VALUE	VALUE PROPOSITION
"I tried traveling with tour groups with the concern about complexity of planning everything, but later I got really sick of the hectic itinerary. I gained nothing but some useless souvenirs."	Control of Traveling Pace	Freedom	Matcha Royal, the imaginary realm for we beauty explorers.
"Many attractions are the same without uniqueness, from which I can't find anything surprise."	Respect for Freshness & Unique	Variation	
"Pseudo-classic architectures have been rife and cannot be considered authentic or enchanting. Cultural excavation should focus on making details vivid and highlight the culture of beauty, the beauty of spirit and invigoration."	Authentic Details & Cultural Connotation	Appreciation of Beauty	
"Traveling with friends is a good chance to relax myself as well as to know each other better and to promote our relationship."	Interaction with Friends	Social Relationship	

JOURNEY MAP & ANALYSIS

Vision

Villagers

The great loss of young labors leads the village to unsustain.
Original handicrafts are hard to sell and villagers' income and living quality needs to be improved urgently.
Historical culture is not well inherited and thus endangered.

➤ Sustainable Tourism System Design

Tourists

Need a new way of traveling to freely explore the Matcha village and its culture.
Need a more convenient way of managing itinerary.
Need better approaches to learn knowledge during traveling.

➤ Tourists' Experience Design

Investors

A service break between Matcha Royal resort and Breaker chain stores contributes to brand discontinuity.
Lack of external publicity and marketing channels.
Lack of excavation of the original Matcha culture to promote brand value.

➤ Integrated Brand Design

SUSTAINABLE TOURISM SYSTEM

Co-creation Workshop

MATCHA ROYAL MOBILE

Tea Bag Currency — Consider the meaning of tea

1. How to get?

Currency Exchange	Tea Bag = Currency
Taking Explorer' s Tasks	Quiz : Matcha knowledge contest in Matcha Museum. : Help tea farmers pick tea leaves
Supporting Local Culture	Different kinds of support for local culture and villagers are encouraged, such as ***purchasing crafts, share folk art on social media***, etc.

2. How to use?

MATCHA ROYAL MOBILE START A JOURNEY OF EXPLORATION

Tea Bag Map

This is really an explorer's treasure map. Tea bags to be gained or consumed of each tourist activity are labeled, allowing the user to search interesting activities around, to view others' comments and to add activities to personal "Journey".

Benefits
- Foster users' enthusiasm for exploration.
- Customized and unique itinerary.
- Electric map increases efficiency and reduces service labor demand.

Private Guide

The location-based guide service is provided both indoor and outdoor. Introductory informations about the specific step the user is watching appears on the screen. He just have to pick up the phone to learn it.

Benefits
- Knowledge need is satisfied freely.
- A new way to know current place.
- Makes up for limited guides in the village.

Journey

Personal itinerary can be created and shows here in a chronological order. The most important information of current event comes first and will update automatically based on both time and location. This process covers from the initial planning to after service.

Benefits
- Convenient itinerary planning and management tool.
- Shorten check-in time.
- Reduce human resource input in customer service.
- Simplify check-in system.

Original Crafts Shopping

Users could just use App to scan the QR Codes on desirable original products, to know how craftsmen's story and to buy it. The products could be free delivered to designated address.

Benefits
- Build a channel for original handicrafts and increase villagers' income.
- Able to buy authentic products and receive at home.

* Benefits for
- Tourists
- Investors
- Villagers

INTEGRATED BRAND DESIGN

Unified Membership System

Based on our understanding of the service discontinuity between Matcha Royal resort and Breaker chain stores, we designed a unified membership system to foster bi-directional customer flow and to create complete customer experience.

We collected artifacts, photographs literature and art works of local history and Matcha culture, abstracted elements from them to create several graphic patterns and designed for varied applications.

Original-Ecology Brand Design

At Breaker

Original Matcha products are placed at the store and interior elements like display boards are designed to create an atmosphere and to embody brand culture.

Packages will show the original quality. The user can scan the QR code to learn about the story at Matcha Royal and to buy tickets.

At Matcha Royal (Based on App)

Voucher for Breaker

Users can be rewarded with a Voucher after task which encourages them to use at Breaker.

Benefit

Prolong the life cycle of customer experience.

Social WOM Marketing Strategy

An incentive mechanism for sharing experience at Matcha Royal is an important part of Word-of-mouth marketing, other than user experience design per se. Users will be rewarded when they share their emotions.

Benefit

Enhance users' engagement.
An efficient and economical marketing channel.

STORYBOARD

Breaker

1. Scan the QRcode and decide to take trip at Matcha Royal.

2. Add events which Julian is interested in to the Journey list.

9. After wonderful trip, back to Breaker and use the coupon to get tasty matcha cake!

Matcha Royal

4. Take a memorial photo with tea grower while enjoy tea picking and upload on app.

5. Visit the Matcha Manufactory to know how to make Matcha and taste Matcha food.

3. Use online check-in efficiently after arrived at Matcha Royal with friends.

6. Participate in tea ceremony, then relax in the green tea SPA.

8. Buy some original souvenir before leaving and choose free delivery to home.

7. Find the amazing craftsman and complete a task! Julia is rewarded a free coupon!

Click to Watch the Video
https://vimeo.com/205900526
Psycho-geographer's Table:
Halifax Explosion
HCI Research | Team Project 2016
My Work:
Projection Mapping
Data Visualization
Mixed Reality Design
Psycho-geographic Research
Interaction Design

Headlines In

HISTORY

DECEMBER 6,1917

HALIFAX EXPLOSION

THE HALIFAX HERALD

HALIFAX WRECKED

More Than One Thousand Killed In This City

Many Thousands Are Injured And Homeless.

A dense cloud of smoke and debris rose to an estimated height of two miles.

Halifax Explosion

The Biggest Man-made Explosion before Atomic Bomb

The Explosion was the result of a collision between two ships in the Halifax Harbour. At 9:04:35 on the morning of December 6, 1917, a munitions ship, the Mont-Blanc exploded, immediately killing more than 1600 men, women, and children. The shockwave produced by the detonation that was the equivalent of 2989 tons of TNT travelled at a speed of more than 1500 meters per second. Sea water was vaporized and pushed into a tsunami. More than 9000 others were wounded, 12,000 buildings were damaged.

Halifax before the Explosion

Halifax after the Explosion

The Legacy - Memories Need to be Honored

Though the explosion was a terrible dark moment for the city, the response of the numerous towns, cities and countries who offered relief is an inspiring story of compassion, human generosity, and the willingness of many to work together to help repair a "Shattered City", from which modern Halifax has emerged. December 6th, 1917, a defining moment in the history and rebirth of Halifax.

Every year Halifax sends a Chritmas tree to Boston as a thank-you gift for its sympathy and aid in the explosion.

Freelab Project

Psycho-geographer's Table for Halifax Explosion

Freelab is an interdisciplinary group, comprised of artists, filmmakers, architects, curators, researchers and educators, whose work focuses primarily on the Halifax Explosion and its impacts. Through investigations of the Halifax Explosion, objects and artifacts was found or produced– some already imbedded with meaning and others to whom meaning is either given or unknown. Many of these things are now contained within this table.

NiSTS

GEM Graphics and Experiential Media Lab

DALHOUSIE UNIVERSITY

NSCAD UNIVERSITY

GOAL

To create an interactive artifact to display geographic and historical information and objects about Halifax Explosion.

DURATION

One Month

CORE METHODOLOGIES

Human-computer Interaction & Psycho-geography

Supplement: Psycho-geography & Derive

Psychogeography itself is an approach to geography that emphasizes playfulness and drifting around urban environments. The term was defined by Guy Debord in 1955 and, by definition, combines subjective and objective knowledge and studies.

To reconcile this inherent paradox, Debord constructed his "Theory of the Derive" in 1958 which was basically an instructional manual for psychogeographic activity as experienced through the act of drifting. This drifting, known as the derive, is an unplanned journey through an urban landscape where participants, ideally in small groups, let themselves be guided by the terrain, its attractions and the encounters they find there. The ultimate goals of the derive are studying the terrain and experiencing emotional disorientation. Through derives, we can explore neighbourhood boundaries, paths of varying resistance, the appealing or repelling character of certain places.

The Mont-Blanc, (left) was pressed in to service to carry much needed munitions to France. The Winifred, (right) an American vessel was similar in size and design.

Psycho-geographic Study of the Halifax Explosion

Derive Map: Debris Field

We took one week to investigate the debris field via psychogeographic walking. Initially I was worried about this approach without setting definite outcomes, but later I learned a lot about the importance of research at the front end of a design effort.

The exploratory walking helped us as a group understand the social and environment differences within such a small geographical area, and allowed us to gather information and generate ideas at a comfortable pace, resulting in a highly generative work environment when we returned to the studio to design.

Narrative & Historory Research

Field Work

1. Walking in the Debris Field
2. Special presentation at the debris field. The XYZ monument made by Freelab students was cast with a core of wood, which was burned out during the presentation.
3. Participants covered their eyes and listen to the story of the many people blinded, maimed and killed in the Explosion.
4. Possible black rain remnant.
5. The model of the refinery destroyed in the Explosion, filled with sugar, is ignited. The refinery was a landmark on the Halifax shoreline, and a major employer

Cataloging Artifacts from the Debris Field

Ideation

Psycho-geographer' s Table

A novel table reflective of the Halifax Explosion and its impacts on the city. While the table top model of the Halifax Harbor where the Explosion was happened is used for projecting information, the two drawers are designed to display artifacts.

Glass Projection Display

It represents the Halifax Narrows and information of the Explosion will be projected onto it. With internal light on, people can see artifacts in the drawers through it.

Drawer for Artifacts

To display artifacts found in the debris field or related to the Halifax Explosion.

Wooden Topographic Model

To intuitionally show the terrain and city roads of Halifax. The Augmented-Reality city of Halifax will also be set on the surface.

Plank with a Burnt Surface

To commemorate the great fire after the Halifax Explosion which took thousands of people's lives.

Internal Light On

With Projection

Projection Mapping

Real-time Meteorological Data Visualization

NOW
Sunny
Wind Direction: 202
Wind Speed: 10 km/h
Temp: 20 C

MON
Cloudy
Wind Direction: 165
Wind Speed: 12 km/h
Tep: 14 C

THU
Rain
Wind Direction: 26
Wind Speed: 15 km/h
Tep: 6 C

FRI
Partly Cloudy
Wind Direction: 67
Wind Speed: 11 km/h
Tep: 8 C

Topographic Model

Directions Bar

Atmosphere Temperature
Represented by the background color

Cloud Density
Represented by the white dots' density

Wind Direction
Represented by the white dots' moving direction

Wind Speed
Represented by the white dots' moving speed

To display meteorological information of Halifax was a crucial part of our research. I managed to visualize both historical and real-time data, and to project the generating video onto the glass display on the PG Table. Leap Motion was used for gesture control.

Created with

LEAP MOTION

Isadora TROIKATRONIX

Mixed Reality

Created with

Microsoft HoloLens

A novel table reflective of the Halifax Explosion and its impacts on the city. While the table top model of the Halifax Harbor where the Explosion was happened is used for projecting information, the two drawers are designed to display artifacts.

Inplementation

INFOREST

Interactive Space I Botanic Interaction

Team Project 2016

My Work:
Team Leader
Botanic Interaction
Concept Design
Engineering
Prototyping & Tests
Product Launch

Click to Watch the Video
https://vimeo.com/202718376

Background

What about Interaction beyond Screens?

As informative transformation goes further and deeper, whereas ubiquitous screen-based user interfaces have profoundly changed people's life, it is estranging people from the real physical world. This context urges me to rethink interaction design on a larger scale-to design interactive system or environment where people are naturally immersed in.

Urbanization in China

China is experiencing the fastest and greatest urbanization in the world, which leaves the modern society many thorny problems like air pollution, crowded traffic, and more notably increasing pressure on people. Not surprisingly, urban people are eager to get away from cities which they used to call home, and get close to the wild nature once they have a chance.

Vertical Structure of the Forest

Now imagine if you were leisurely sauntering in a forest, taking in all the sights, sounds and smells of nature. How is it like? I bet it is the most welcome when you get tired of city's noise. The concept of Inforest originated to produce an interactive experiential system arousing urban people the sensation of the forest. Our work started with analyzing the vertical structure of the forest which contributes to people' s multi-layer sensory experience in the forest. Then we abstracted specific sounds from each layer for the following design.

Interactive Technology Research

Principle

Swept Frequency Capacitive Sensing Technique from Disney Research and Carnegie Mellon University (*Touché: Enhancing Touch Interaction on Humans, Screens, Liquids, and Everyday Objects*)

Sensing System Establishment

Sensor board building with Arduino

Electric signal visualization with Processing

With a single conductive wire linking the soil or water to our sensor controller and through electric signal analysis, the sensing system could detect and recognize people's different gestures interactions with plants.

Gestures Classification

Gestures classification was the next step to enhance plants with rich touch and gesture interactivity. Each transmission from the sensor contained a 160-point capacitive profile from which we extracted a series of features for classification.
After more than 400 times classification accuracies tests for different kinds of plants, we select reliable controlling gestures (with accuracies over 80%) of each plant for the following application.

Conception

Inforest is an urban public breathing space in which modularized interactive units are embedded. Specific building structure and installations are designed to help people involve multiple senses – touching, hearing and seeing. We understand people's participation is key, so our work taps into some of the most basic human instincts, to play and explore. It also generates talk value through a shared experience.

Emergent Layer

Brightness: ☀☀☀☀

One of the liveliest sensations of the forest comes from the birds. People could control the birdcall's volume by changing the distance from their hands to the plants. However, once they touch the plants, they will hear all the birds scatter away suddenly and they need to move to another spot to hear those birds singing again. The open dome contributes to the high brightness.

Canopy Layer

Brightness: ☀☀☀

On this layer, people could rest on a bench with cicadas' sounds and the sound could be gradually stopped by slightly pinching the leaves. The semi-open glass curtain wall, as well as the shading columns overhanging the ceiling, let more light in but sustain moderate brightness.

Shrubs Layer

Brightness: ☀☀

Interactive plants units are installed along the trails going upward. People would hear frogs and crickets sounds when they walk on the trails, and even hear frogs' jumping into the water when they touch the plants.

Forest Floor Layer

Brightness: ☀

At the bottom of the atrium grows grass on which people could enjoy lying freely and watching the vertical greening and sky above. Besides, by stroking back and forth on the grass, people could hear the sound of stroking water like in a forest. Moreover, the vertical greening surrounding the atrium creates a dim environment like the forest floor.

Space Details

Ventilating System

Structure & Materials

Structure of the Interactive Unit

Prototype