HOLO - DOODLE
set design, style & UX guide
by daffy london

1. project synopsis

HOLO - DOODLE is a VR hangout showing as a centrepiece at this years SIGGRAPH in the VR Village. it features playful androgynous pink robots. As well as being the largest and most prominant show, people will by attracted to the booth by the screen visuals. A combination of in-experience action, and my interactive GIFBOX.TV artpiece, accompanied by robot themed music. Like a good tent at a festival people should swarm, based on the party vibe we create.

On arrival participants will queue on the front corner of our ambiguous square construction. They can peer through the scrim to see 4 people inside completely immersed in a new world. In the lineup our HOLO - DOODLE 'BROKERS' get the audience to start thinking 'robot'. Motions, voices they might use etc. We want strangers to meet in a gender, race, size, ability and performance neutral space. As one robot gets crushed for scrap, another robot enters the HOLO SUITE. Everyone greets the new robot, and the activities continue. This system of ejecting/entering means that the newby, gets to be the 'old school' after their 8th minute in the experience. And in this space people dance the 'robot', act, play games such as VR grafitti and volleybubble. All things to connect people. As they exit, they sit at the bar with a sticker of their avatar, and people get to socialise and exchange stories of their shared journey.

2. character synopsis

Take a look at the designs below. 6 of the 9 robots we plan to use in the final show. We feel these friendly designs completely encapsulate our mission to create a truly 'neutral' space for people to thrive and express themselves in. As people walk into the space, get suited up with a Samsung Gear VR using s8 phones, and strap on Vive trackers mapped by 2 lighthouses, they assume the role of a funky pink robot. We'll not have more than 4 in the room at once and we're looking at having 9 robots in total. with people arriving and leaving it means a single user will never see a duplicate robot. I'm in the process of taking the designs below and making them work in 3D.

They won't be 'toon' rendered, but the shading should be such that they adhere to some simple shading tricks to make them look more stylised than photoreal, which in a game engine on a mobile phone would be impossible. The characters are controlled by arms and head positioning, the feet adjust themselves according to the global positioning. When users talk into the robot voice changer, the yellow should glow. Arms and legs will be stretchable. We might need to implant grooves up the seams of the robots body to allow the short armed guys ability to stretch properly. We'll need full spacial sound, feet should clank, and spray paint should pfffffft.
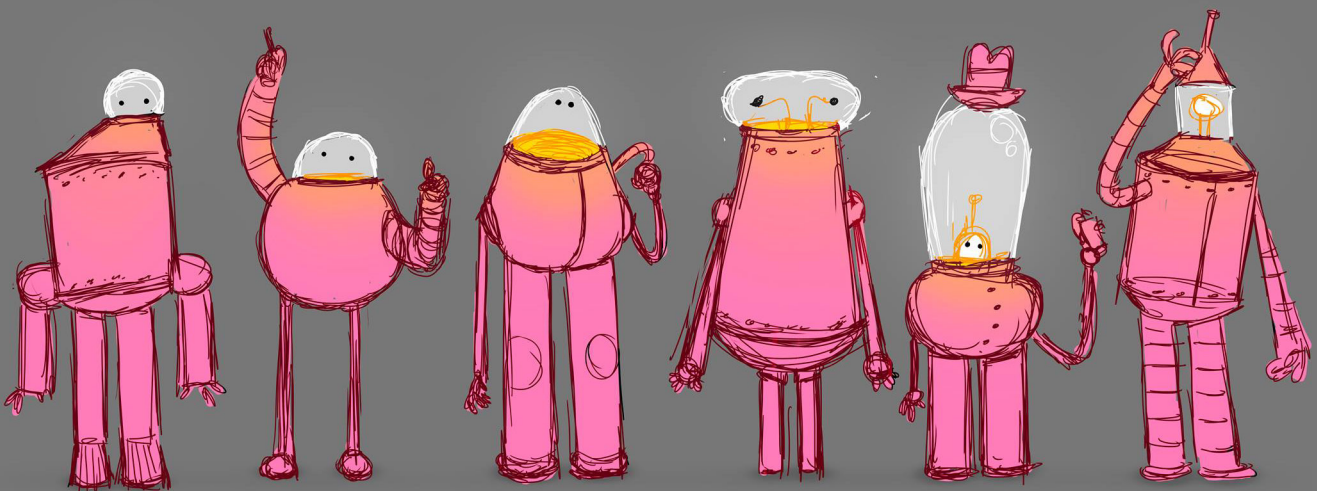
3. character development

a VR hangout

Frame

10   20   30   40   50   60   70   80   90   100   110   1
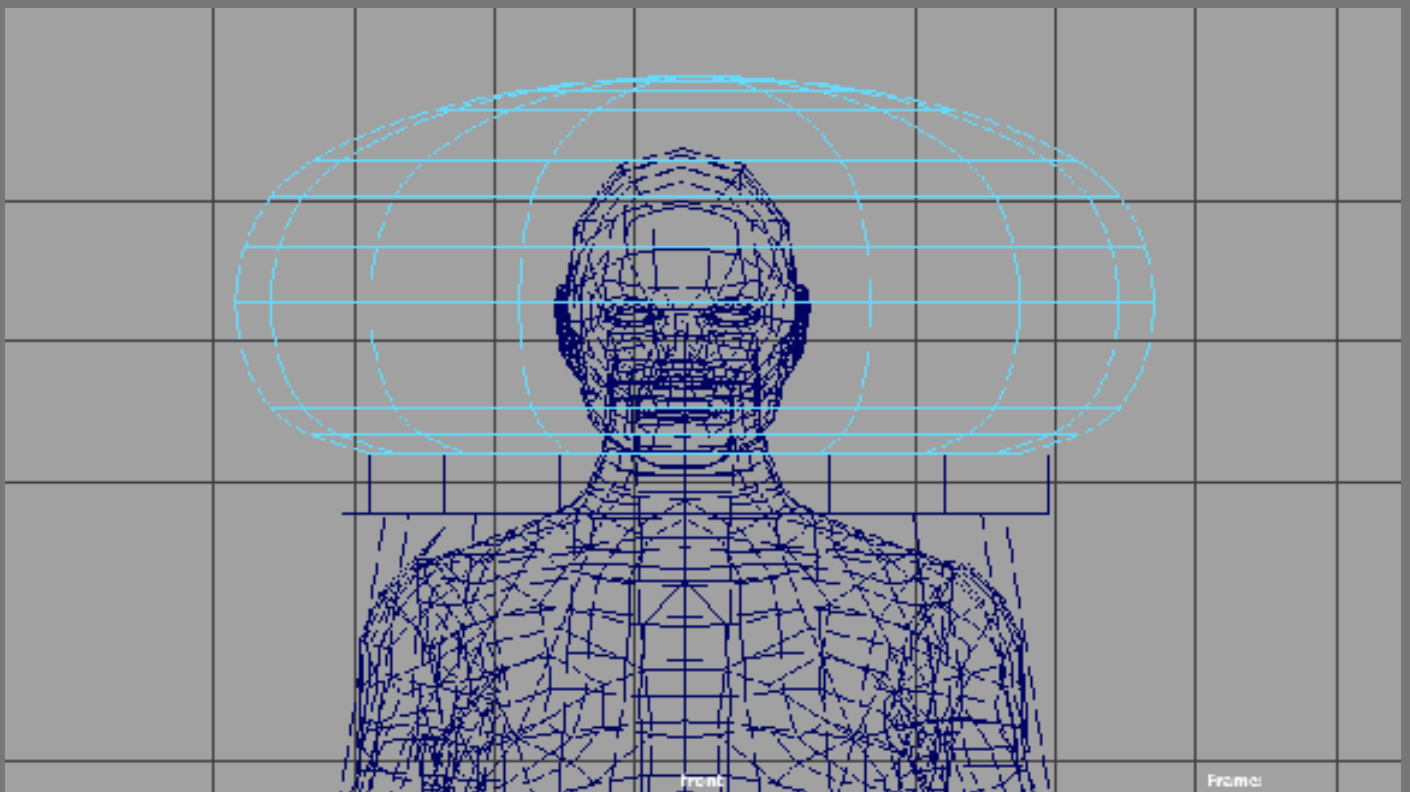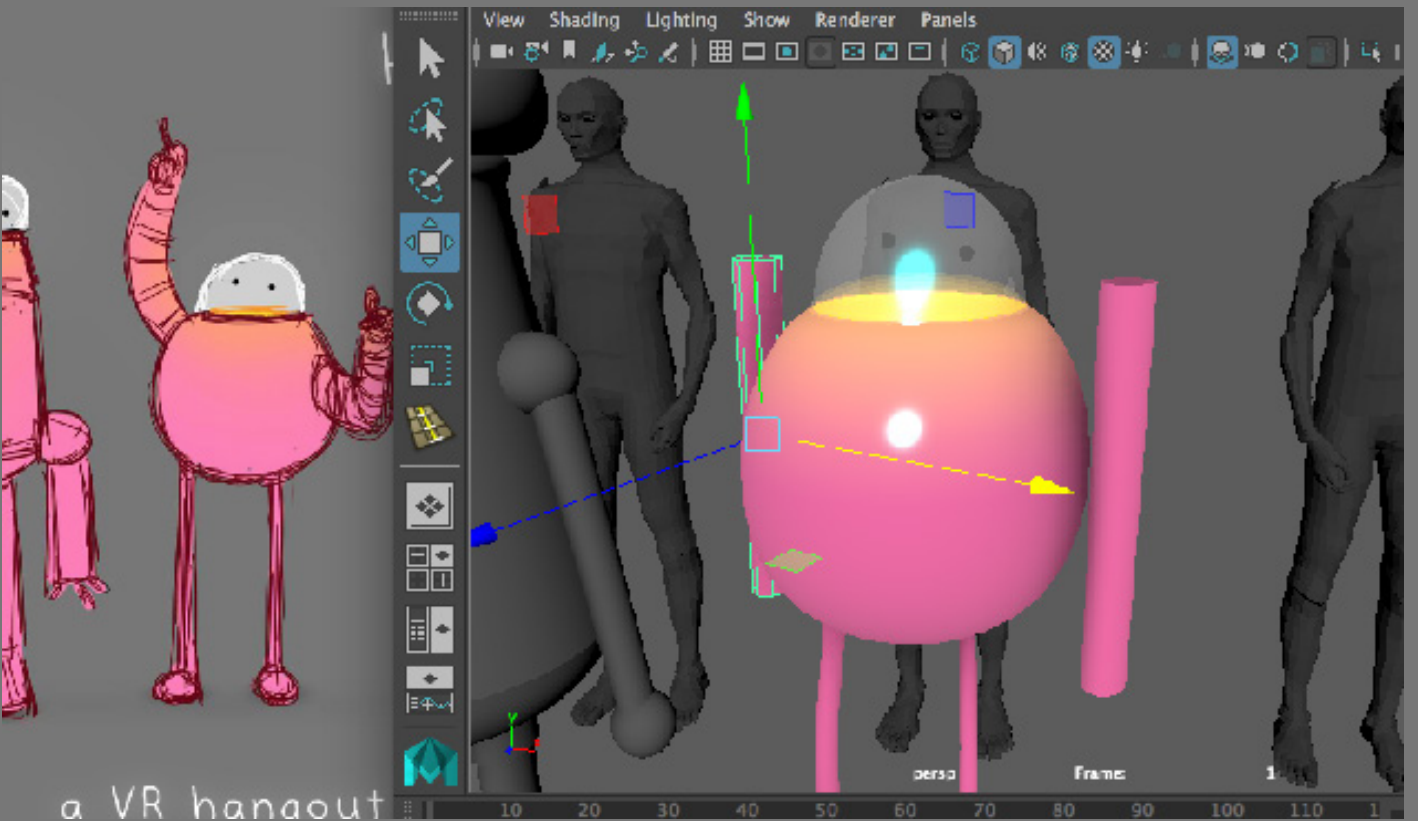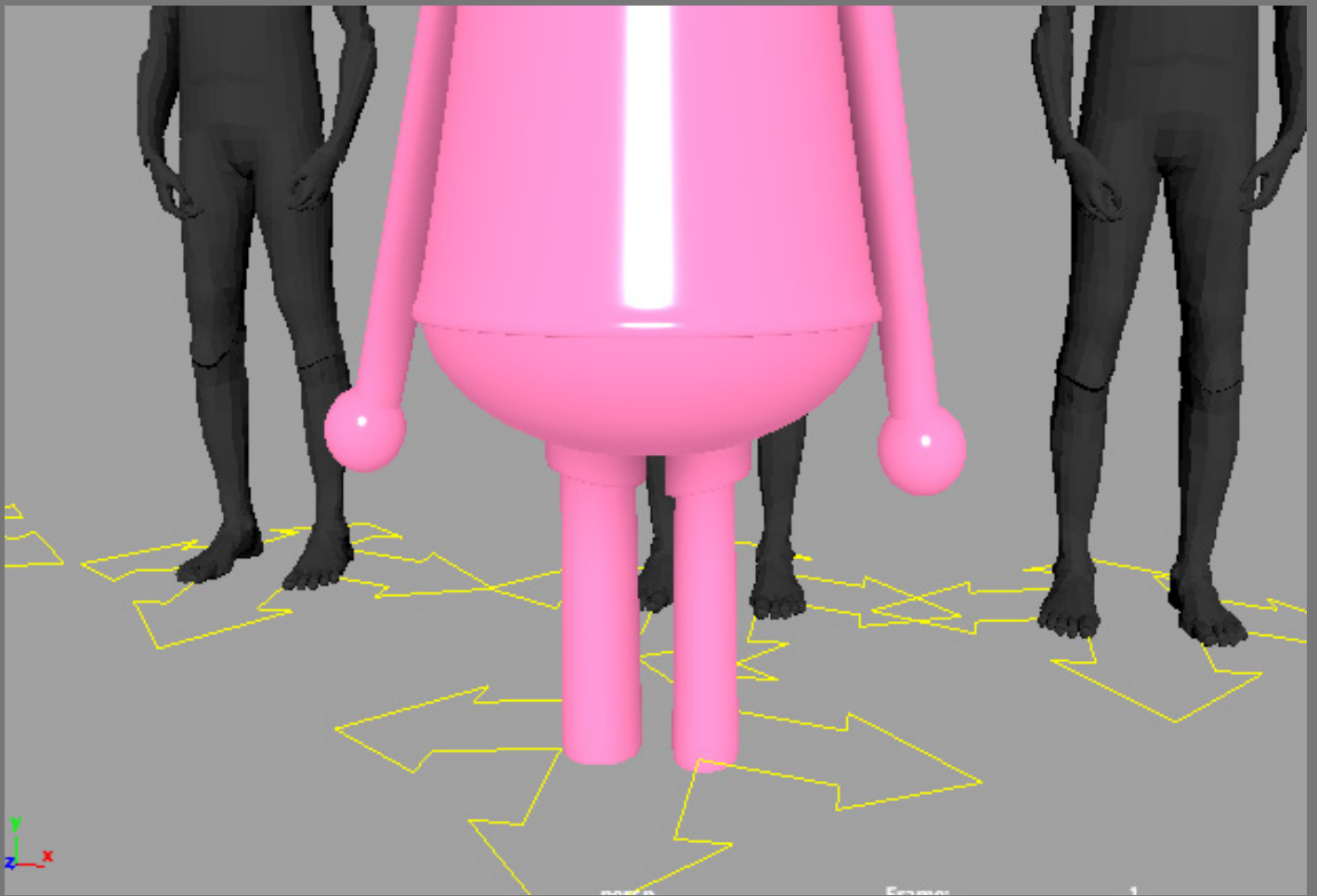
4. the environment

I'm keeping the general in-game environment grey until we have the game dynamics working and the robots looking good. I might hint at things like buildings, or clouds, blinking lights etc in the grey mist as we get further down the line.

5. the experience

Originally, this was Pictionary based. It worked really well, but it took a lot to explain it to new people, and we want to maximise on traffic flow. We've lost the game, but keeping the drawing, and added an array of two minute experiences. We've made a system in which we add a new person to the HOLO - SUITE every two-four minutes. They start as the newby in the room, and progress through the experience following the others who seem more used to the environment. By the 8th minute, they are the old-school, ready for anything welcoming the next person in.

6. flow of traffic

We want a constant stream of traffic using the space. We've looked at the maximum people who should inhabit the space, and we feel 4 at any one time is reasonable. With one person entering every 3 minutes. This gives players 12 minutes of HOLODOODLE time. This may be too much for our team to handle, but we're in the process of workshopping this figure. On the basis that Siggraph runs a total 32 hours (4 + 7.5 + 7.5 + 7.5 + 5.5) then we can push 20 people through per hour. That's a total goal of 640 people to enjoy the experience.

7. trackers

Regarding trackers, we'll require three 'passive' trackers per person, One attached to a Gear VR headset via a specially 3D printed snapon frame, and two on the hands. SUPERBRIGHT have recently perfected this for their DIPLO piece for Museum of Sex. We'll have a total of 16 Vive trackers, which allows for 5 people plus one extra marker if we need it.

Testing the experience at Ken Perlin's VR / MO CAP space at the Future Reality Lab at NYU, Fifth Avenue, NY

10. activities brain dump

These are the experiences I'm writing as I go. They can be built upon. Later on, I go into detail about which ones made it to v1.0 for SIGGRAPH 2017.

volley bubble✿

elo - 'time' opening

mexican wave

life drawing the tea pot✿

life drawing (canned food lady)✿

learn to dance the robot✿

ballet bar (huge mirror)

mirror turns and becomes gridded notepaper

conga line

draw with jakob - learntodraw.tv

silly string party

dancing to dj (lls with robots)✿

pop - up art gallery

a large graf wall

blues bar✿

gatsby 30's style party

tug 'o' war

weight lifting session

head of david

balloon scene with satie

anti gravity moment

bender to walk through set (cigar scent left behind)

other legendary robots

horse charge (pegasus)

manta ray

bats

11. holosuite dimensions

We've been given a prime location within the SIGGRAPH VR Village. Our space is a 7x7x3m truss square. Centralised within the village, we've inserted it like a diamond sticking out. This naturally allows for three useful triangular corners. North East, the I.T. department, two desks, chairs and equipment. People Enter from East, South and West corners, and exit North.

12. voile

To obscure the mocap stage. we're covering the set in theatrical voile. It allows the people in the space to enjoy their time more. It will have slits in the corners, and half way down each length. These eight pieces of fabric will be custom painted hopefully by MR DOODLE, a famous artist.

13. projection

We want a good way to see the action within the holosuite. I want to do this with clever shadows that the robots WOULD cast if they were real. Jim at SIGGRAPH has secured two projectors I'd now like to rear project onto the front two sheets. GIFBOX.TV will play on both, and the robots will be cutout as if in front of the light beam. The actions of the humans inside, will be echoed by the VR robots people see outside. its the ONLY hint of the action inside.

14. lighting

We require 8 main lights for inside the 7x7x3m HOLO - SUITE. We might use them in a very uniform fashion in each of the 8 corners. Or around the top truss. We might also position them at the back rim-lighting with pink gels. We may require more illumination at the front, depending on the current lighting situation and vicinity to natural light. Daffy to talk to Jim.
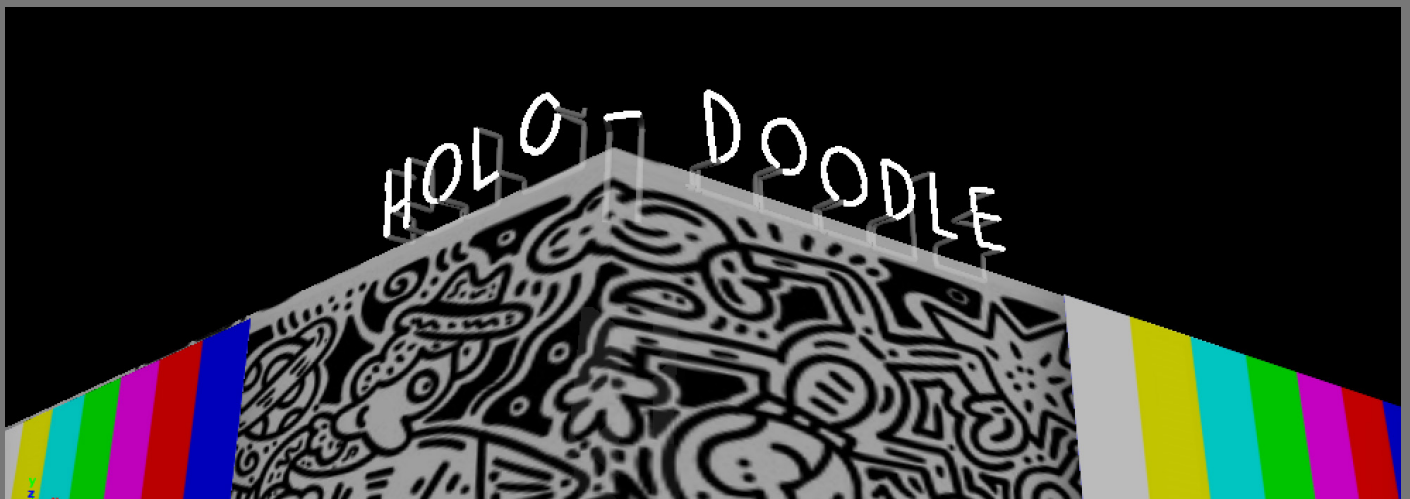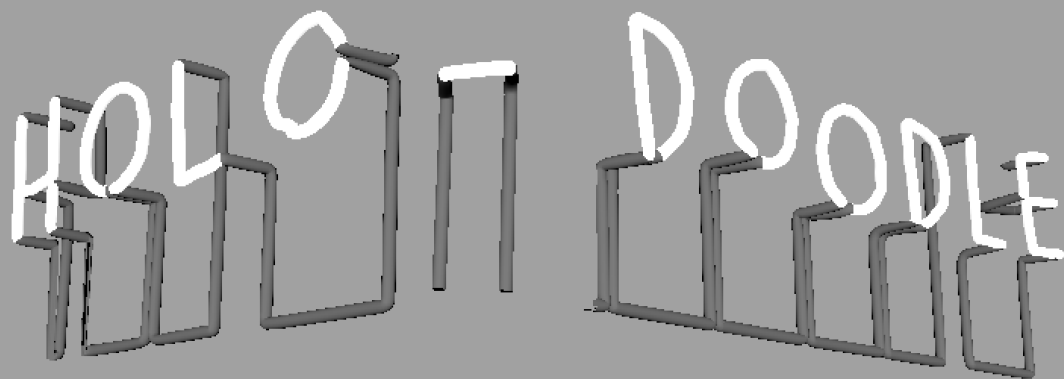
15. sound

We'd like a 360 array of sound. I want to use eight ROKIT speakers. 4 connected to the top truss. 4 on the ground. All requiring connection into a mixing desk.

16. l.e.d. sign

I'm axing the idea of a sign

17. robot characteristics

We need to experiment with what we're given by having three tracking markers. Look at the system developed by Superbright and expand on it.

Ik bends in legs isn't really the requirement here. We need a system that's based off curves, not knee and elbow joints. With the head we can't just attach the orientation of the head based off the person driving it. Most robot heads rotate in one axis, so we need to restrict the axis

As parts of the robot move, we should hear various sounds unique to each robot. We have the complete sound library from Twisted Tools. It's an amazing array of pistons, servo's and other lovely audio cues.

Robots should have plasma ball style sparks with the head. In one of the characters, it should be always on. Small sparks in funny places. (between legs)

Below is a rigging guide for Superbright. Showing the characteristics of every limb on the bodies of the robot.

unity rigging guide

doRDa

arm
variable lengths, curve bendy

legs
fast at following underneath rigid pieces

head
whole head rotates

hA

arm
piston style, straight

legs
fixed length / rigid pieces

head
xxx

e=mz²

arm
variable lengths, curve bendy

legs
fast at following underneath rigid pieces

head
rotates around axis

leVer

arm
slides up a slit in side of body, telescopic also

legs
fast at following underneath rigid pieces

head
dynamically slides around the curve of body, constrained fwd

remCo

arm
variable lengths, curve bendy

legs
fixed length bendy (not IK)

head
rotates around axis

AD<3M

arm
fixed length, curve bendy

legs
fixed length / slight bends

head
rotates around axis

rangee

arm
piston style, straight

legs
fixed length / rigid pieces

head
rotates around axis

CoNBo

arm
random odd length, curve bendy

legs
fixed length / slight bends

head
whole head rotates

sherpa

arm
fixed length, curve bendy

legs
variable length slight bends

head
the glass orbits in pit of body

18. social media

Website - www.holodoodle.net
Instagram - https://www.instagram.com/holodoodle
Linked In - https://www.linkedin.com/in/holo-doodle-10123913b
Facebook - https://www.facebook.com/holodoodle

To contribute photos, updates etc. Ping Daffy.

19. press coverage

Our listing for the experience is on the official SIGGRAPH website.
http://s2017.siggraph.org/vr-village

David Porzio discusses his experience of our TEST DAY here. It's a great article.
https://www.translator.media/blog/2017/4/27/the-technology-paradox-what-does-vr-add-to-our-real-lives

20. clothing

clothing

We'd like a dress code, so that our team have an identity on the trade floor. But NOT jeans and a logo-d tshirt! Essentially, everyone will wear PINK TRAINERS, and any item of clothing they feel comfortable with so long as it's of any monochromatic shade between white and black, with no logos.
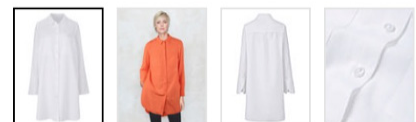
Our stylist / creative consultant Neha Amin has some wonderful visual ideas for those who want to feel even more adventurous. White boiler suits, pink balls on extremities, pink rimmed glasses.
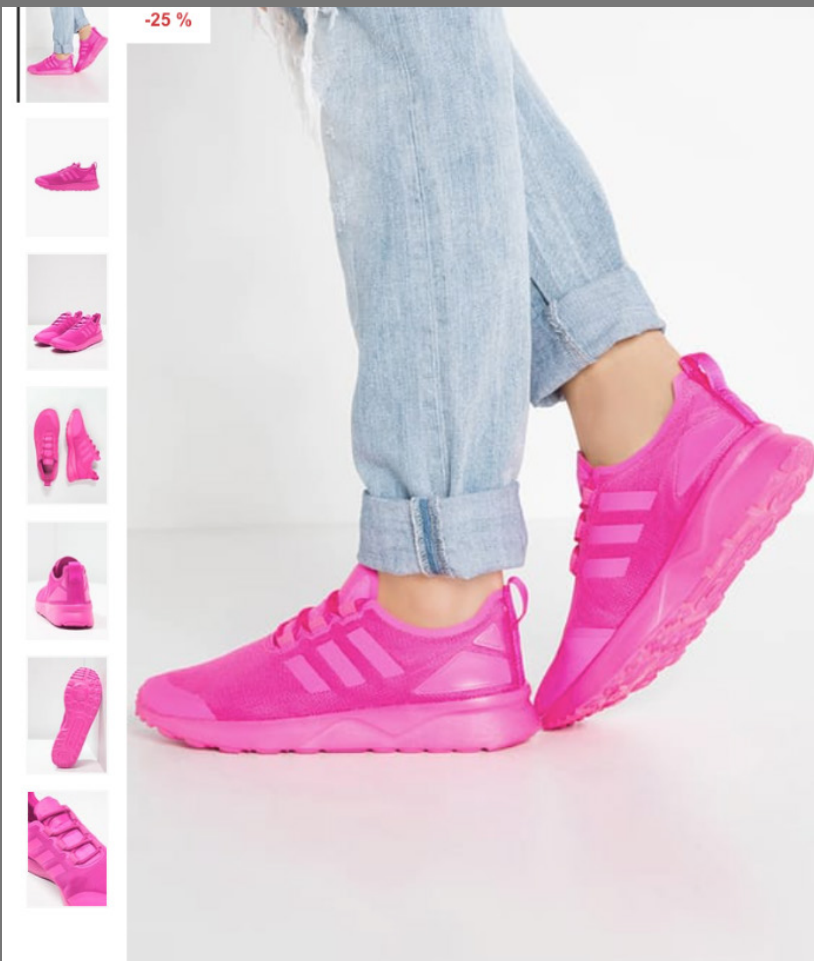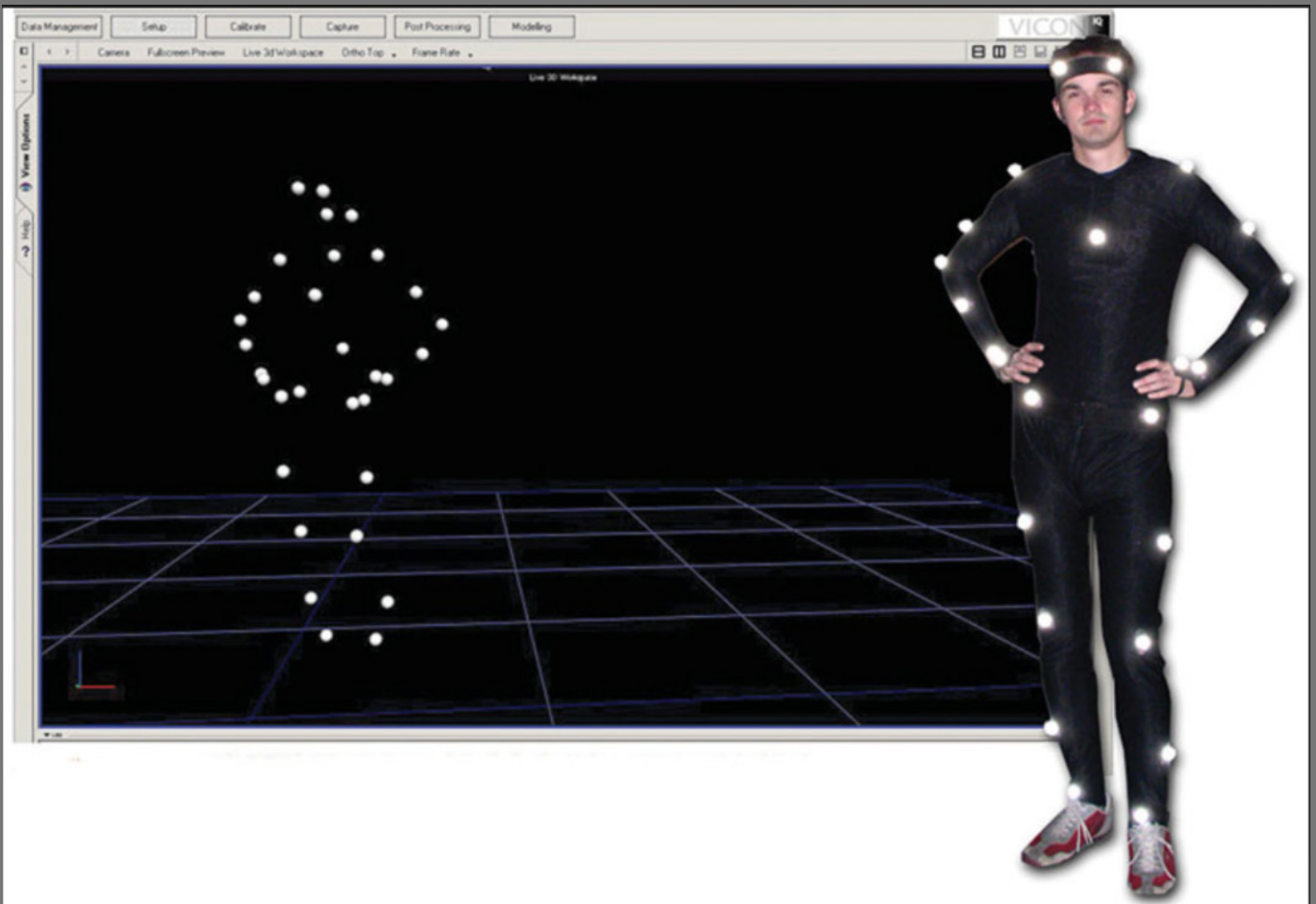

OVERSIZED SHIRT WITH CURVED HEM

Rollover image to magnify

21. graphic design guidelines

21a. title
When written HOLO - DOODLE must be written this way at all times to reflect the logo design.
Not HOLODOODLE
Not HOLO-DOODLE
Not holodoodle
Holo Doodle

an NOT HOLO - DOODLE. (NEVER use the supplied font to write it. Use the artwork)

21b. colour
for official documentation, the fonts should be in white, no glows except artwork (or video), all against a mid-dark grey background.
rgb value 119,119,119
hex #777777

WHITE	#ffffff	
GENRE LIGHTER	#999999	
GENRE GREY	#777777	(THIS PAGE)
GENRE DARKER	#484848	
GENRE DARK	#2b2c2c	
BLACK	#000000	
ART PINK	#fe7db5	
TEXT PINK	fec1d7	
MINT	#00ffaf	
STONE	#f6e099	

22. font guidelines
HOLO - DOODLE logo.png or HOLO - DOODLE logo.ai must be used as the artwork for the final logo.

For other large titles please use the font BURST MY BUBBLE (supplied). If the title is for something quite crucial like a large posters, party invites, signage etc, then DAFFY will recreate the word with CAPITAL letters more in line with Jakob Schuh's logo design.

Sub headings also use BURST MY BUBBLE.

For large blocks of text in such things as press releases, use GOTHAM REGULAR/ITALIC/BOLD (supplied)

23. scavenger hunt
We love the look of the QR code used in the official scavenger hunt. We'd love to include this, This will be hidden on our screen, amongst our GIF's, VISUALS which will be playing on the two screens. Hunters must use our webapp www.gifbox.tv/holodoodle to find the QR code. We'd LOVE to choose the design if there are designs to choose from.

24. schedule

w/o 22 May			- Final Jakob brief / engage Superbright / social media
w/o 29 May			- Daffy to deliver first 6 robots (Jakob to commence design for last 3)
w/o 05 June			
w/o 12 June			- Superbright finalise robot models
w/o 19 June			- NYC Test of mapping, look, can
w/o 26 June			
w/o 03 July			- Superbright integration done
w/o 10 July			- Superbright testing
w/o 17 July			
w/o 24 July			- Prep, Pack
JULY			
Friday	28	-9am - 6pm	- LOAD IN
Saturday	29	-9am - 1pm	- TECH REHEARSAL
		-3pm	- DRESS REHEARSAL
Sunday	30	-1:30pm - 5:30pm	- SHOW
Monday	31	-10am - 5:30pm	- SHOW
AUGUST			
Tuesday	1	-10am - 5:30pm	- SHOW
Wednesday	2	-10am - 5:30pm	- SHOW
Thursday	3	-10am - 3:30pm	- SHOW
		-4pm - ?pm	- STRIKE THE SET

25. official credit list (daffy to keep updating this on SIS)

DIRECTION - DAFFY LONDON
Daffy - Director / Host
Neha Amin - Creative Consultant
EMZ Especial - aka E=MZ2 - Broker
Narcos Najera - Broker
Alex Parkinson - Executive Producer

PRODUCTION - SUPERBRIGHT
Meghan Nelson - Experience Producer
Igal Nassima - Technical Producer
Micheal "Caco" Peguero - Content Producer
James Cao

TECHNOLOGY - NYU
Professor Ken Perlin
Connor DeFanti - Devloper
Wenbo Lan - Developer
Zhenyi He - Developer
Fengyuan Zhu - Spectator View AR

SUPPORT / SIGGRAPH LIAISON - SVA
Terrence Masson

DEVELOPMENT
Laura Dohrmann - Development Produce

HOLO - WEB
Connor Doyle

Official HOLO - DOODLE track - 'Werk it out' - AD<3M (a_d_3_m)

GIF Assistant - remCo

HOLO - DOODLE

UX guide

26. a full experience

Superbright and NYU are completely nailing the development going into our lovely robots. People are going to be amazed just puppeteering these lovely things. Any activities we build on top of this, is a bonus. What's important is the consumer experience.

How guests experience this artpiece before and after becoming a robot character is equally important as to what happens in the headset. I feel like we should look to Disney to offer insight into how we can off that full service moment. From the Disney archives, it seems that to fully entertain someone wanting to see a ride at Disneyland the Disney imagineers would break down the key moments as follows.

- Drawing people to an attraction
- Entertaining the people in queues
- Starting to explain the story of the project within the queue
- Providing an amazing experience in itself
- and then ensuring people have a great post queue come down.

All of these things are obviously necessary to ensure that there is little room for disappointment, and so if we think about these moments going into our project, then it stands to reason that we'll make something profound and long-lasting for all who are kind enough to queue and participate.

There have been some changes along this journey, all stemming from the test of a few months ago. The fact that our test subjects not only enjoyed the experience, but formed friendships inside the space. This became the main focus for change. Recently whilst explaining this to an investor I summarised it in one line. To which he said, THAT'S your marketing tagline.

"People go in as robots, and come out as friends"

27. based on advice

Getting to the point of being able to write this UX doc has been a rocky one. Mulling the idea over and over and over in my head. I put myself in the shoes of someone completely unaware of the project, seeing it for the first time.

My job on this project is to imagine, direct and create... but it's also to watch, listen and respond to the entire team of amazing people helping shape this, as well as the guests that we have playing and testing it. It's important that I list some of these critiques and give my responses, so that when you read this final breakdown of what's staying, and what's going, I don't come across as scatty or indecisive, but instead being OBSESSIVE about the full customer experience.

- Learning the Pictionary took too long for participants, and Ken recently said, 'don't make activities that require instruction'.

- Laura is quite rightly nervous about queues. So I'm including an entire chapter about people flow.

- David Porzio pointed out that people can actually make friends in this thing. And so this should to be our emphasis through the activities.

- Caco observed that simpler games, like those played at an American fare would allow users to pick concepts up at breakneck speed
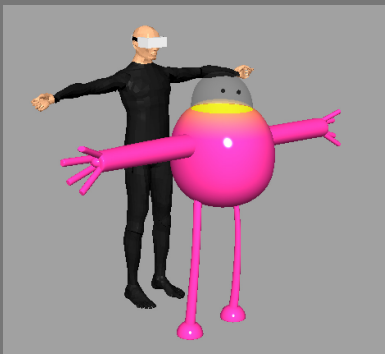
28. notes on the robots
The following pointers are what I feel should be achievable and will get the most out of our robot experience.

28a. remapping
We have to make a decision about how human movement and human proportions maps to a robot counterpart. remCo our first robot is simple. He's roughly average adult height human shaped.
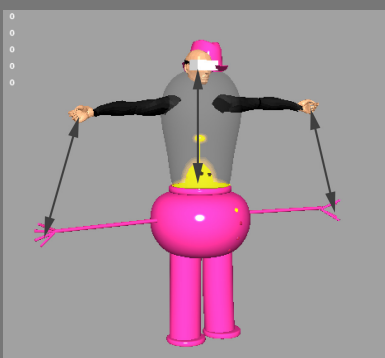

conBo is a different beast. He's very short with long arms, and a huge head. We have three options for the remapping.
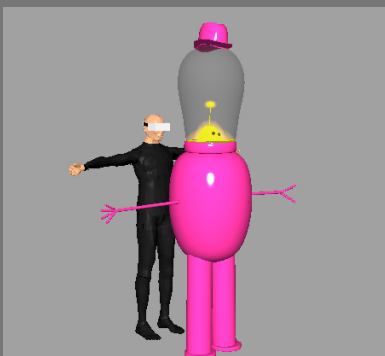
i. Reproportion the robot
Scale conBo to human proportions. This removes the character of conBo entirely,

THIS IS NOT AN OPTION!

ii. Puppeteering
This instance is a little like a marionette with the robot on strings. From our POV we're human height, and our hand gestures are offset down to the robot below. This should be tried, but in this instance it's hard to connect with objects, shake hands etc

iii. Repositioning the human
I feel this might be the wierdest but most successful avenue for HOLO - DOODLE. We take the relative positions of the head and heads and scale/position them to the POV of the robot. For conBo the human POV is suddenly that of being very short. looking up at everyone. I think it's both funny, and also conforms to the concept of what VR is supposed to do. To teleport you to something else.

28b. holding things

After a long and fun discussion with Caco, we're in agreement that in-game experiences should be simple, and have the minimum requirements of the people participating. One of those things is requiring people to hold things. If we can make this 'hands free' and people are literally just puppeteering. I want to know how much work has gone into making the spray can, as I might now want to get rid of this extra controller.

28c. robot audio

i. sounds

Ultimately, for HOLO - DOODLE v2.0 I want to have a spacial 360 sound set up. Where we can hear the noises of every movement. Feet connecting with the floor etc. For this, we need SOMETHING localised and robot'y and we should use the one speaker that's available per headset... in the phone. So I'll supply a robot servo sound for the neck turns, and maybe for arm movements, which will play per character through the individual s8 phones.

ii. robot voice

I've ordered a range of voice changing devices. These might get glued directly under the VR headset if they prove useful in changing the voices of the participants. Again for v2.0 it would be nice to see if this voice can then be fed into the s8 phones and amplified out again. So a quiet voice becomes a loud robot.
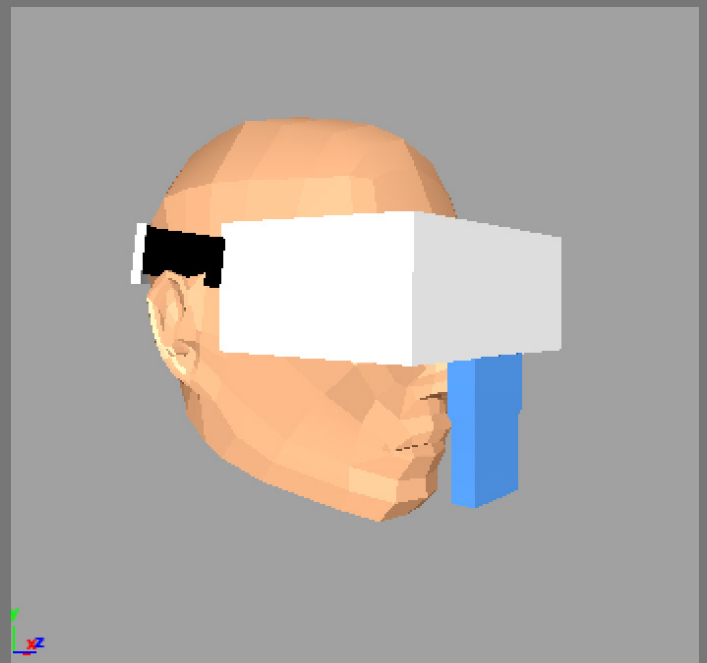
iii. music

This will come though the main speakers, of which there will be four. We can stick to stereo here. Spacial not required. Will talk to NYU/SB about how to manage this sound mix out of Unity.

28d. adding life

i. lamp illumination
The one key thing that will make the robot's feel like they have a soul, and connected to the person puppeteering them is if there is a visual response to their voices. On the original monkeys it was basic mouth openings and closings. In the robot's, it's simpler. The light inside the heads should glow brightly. The default would be the yellow glow as per concept art. bur with voice the glow would become brilliant gold/white.

iii hand gestures
Caco and I next week will run through key hand/finger poses based on positional zones relative to the body. As hands rotate within a zone the hand gestures change. This is enough to make the hands not look dead, and without the requirement of mo-capping fingers.

Zone a

Zone b

Zone c

Zone d

Zone e
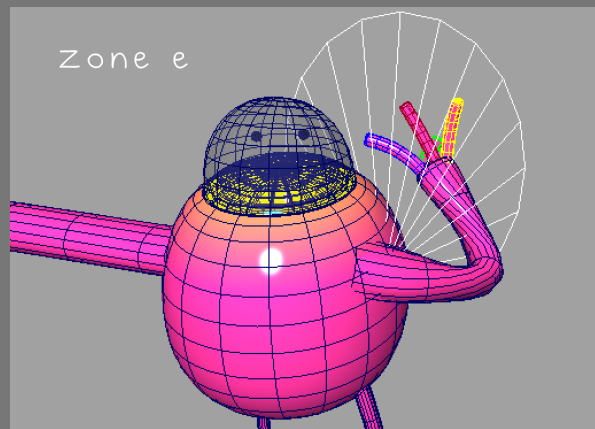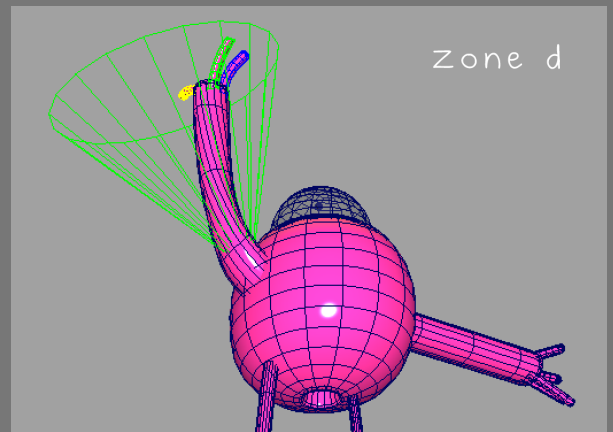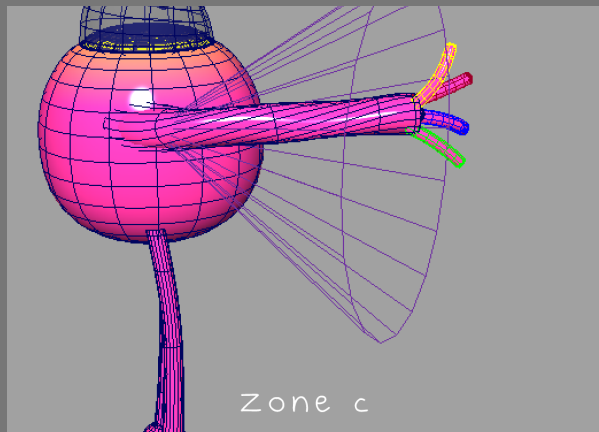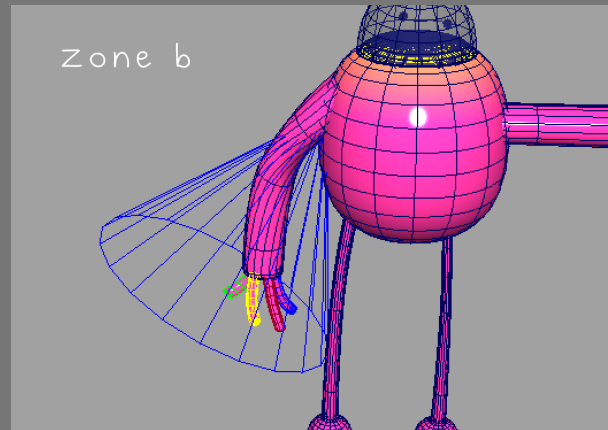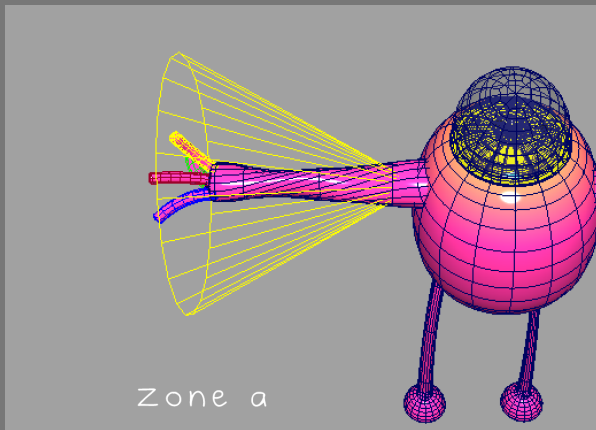
29. the experience in detail

Here's an attempt at a runthrough of someones experience of HOLO - DOODLE. I'm currently colour coding the corners of the HOLO - SUITE, and colour coding people queueing. It's starting to look like a game of LUDO.
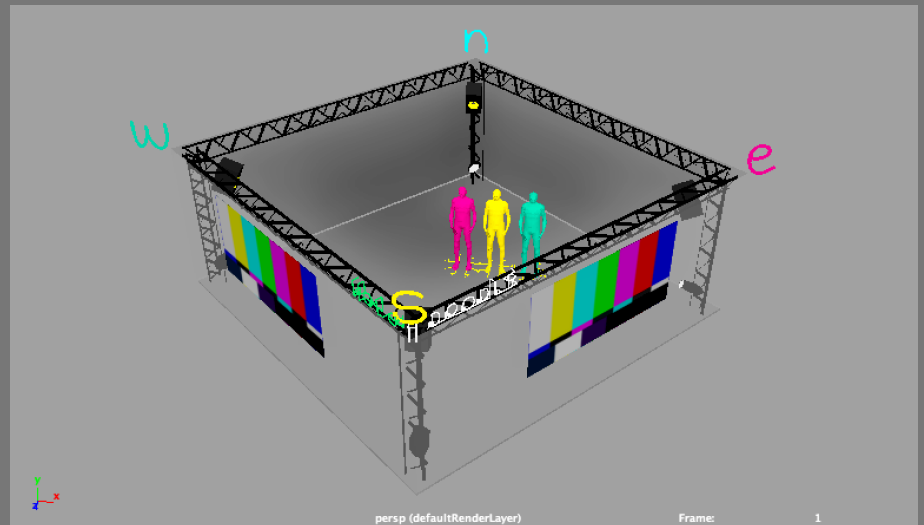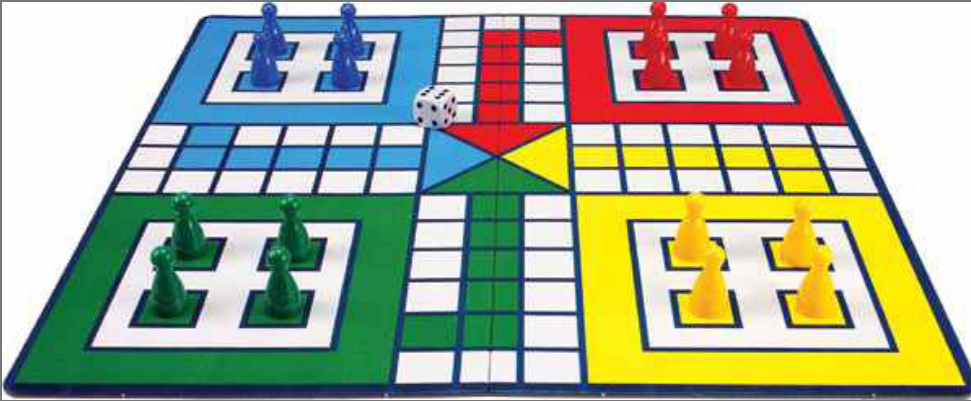
a. initial attraction

People will first be inspired to take part by the coolness of the set, the graffiti by MR DOODLE (unconfirmed), screen shots within the experience (maybe) and GIFBOX.TV

b. queue initiation

People hang around the space whilst waiting on one of the three queues to free up. One per corner (On guide... East, South, West) We won't allow any more than 6 per corner. That is our queue...
In the queue we have HOLO - BOUNCERS giving instruction to our participants. They will be told
i. a small amount about the experience
ii. encouraged to 'let go' and 'become' a robot
iii. to participate as much as possible
iv. but most importantly to look for their 'HOLO - MARKS'. (These will look like very clearly identifiable beams of light to stand under)
v. to initially stand where they are and await the first 'HOLO - MARK'.
vi. they will be given a sticker so that they know which character they will play, and that they can be recognised on the couches afterwards.

c. initial entry

Every few minutes (between 1 and 4) a person will be fitted with a headset, in the line, and VIVE markers strapped to hands. The headset ON, but showing Dark Grey.

d. it's alive... alive!!!

The person is walked forward a step. Gets greenlit by tech confirming that the markers are working, then becomes activated but not visible. v2.0 they would see themselves as a robot become assembled with limbs flying towards them from every place. v1.0 they might just POP on.

e. first holo-mark

The newby will see people interacting, then when the next experience starts, everyone is called to their HOLO-MARKS. They become visible to everyone, and the experiences continue.

f. find your holo-marks

They look for their HOLO-MARK, when everyone is in place the next activity begins. This might be dancing, drawing, watching an animation etc.

g. activities

During the newbie's time in the room, many random experiences are selected by the computer. They are not connected to how many people are in the room. and not connected to time people have in the room. That way if people leave early, the experiences just play regardless.

h. shutdown

At the end of someones time, they go to the back of the room North corner, and vanish from the environment. The visual in headset goes dark grey, and their trackers and headset are removed. so that they can see inside the VR room where they've been interacting. And they leave via the back to the couch area in the North West quadrant to meet their fellow players.

i. debrief

On the couches people are encouraged to discuss the experience. We might be able to catch some of the feedback on camera.

30. the space

The environment will remain grey until we decide it should be something else. Robots will be reflected in a mirrored floor. We need to test the boundaries of this space, how people know they are reaching the edge of the trackable area. The 'GENRES' of the games will change every two minutes, as will the music. When this happens, the brightness of the background will change from a grey lighter than this background, to near black.

31a. the moments

The games will run continuously regardless of the timing of people going through the experience. The moments will be 2 minutes each. THE TWO ARE INDEPENDENT.
The games will feel randomised, but playlisted, and the audio files will run concurrently to the 'moments' so that we can make the whole experience feel more infinite. Moments will literally BLIP off to the next game. Someone can be halfway through a masterpiece, and then it will be lost, forever. Each GENRE has variations on a theme. We're looking to get all of the following achieved, but even if we just get a fraction working, it will still be a profound experience.

GENRE	NUMBER	BG
DRAWING	1	DARK
PHYSICAL	2	GREY
DANCING	3	DARK
ANIMATION	4	LIGHTER

These are the GENRES, and their corresponding NUMBERS and BACKGROUND guides

	00:00	02:00	04:00	06:00	08:00	10:00	12:00	14:00	16:00	18:00	20:00	22:00	24:00	26:00	28:00
GENRE	1	3	2	3	4	1	3	2	3	4	1	3	2	3	4
VARIENT	a-i	a	a-i	b	a	a-ii	c	b	d	b	a-i	a	a-ii	b	c
AUDIO	001	3a	002	3b	003	004	005	2b	3d	006	007	3a	008	3b	4c

This example shows 'MOMENTS' every two minutes
- the GENRE number
- the VARIENT of the GENRE
- and the connecting AUDIO.

This is all playlistable. The list overleaf means that I can add a relatively infinite list of 2 minute audio tracks to a finite amount of levels.

31b. moments - full list

1. drawing

ENVIRONMENT - DARK

1-a-i. SPRAY CANS
everyone has a different colour, shoots out of one hand. One robot has paint coming out of it's ass
1-a-ii. SPRAY CANS   w POLE
same but the paint is turning around a pole
1-a-iii. SPRAY CANS   w POLE FAST

2. physical

ENVIRONMENT - REGULAR

2-a-i BEACH BALL   normal
a beachball drops people play beachball
2-a-ii BEACH BALL   (low gravity)
the dynamics are set so the ball is light
2-b BALLOON w SATIE   (low gravity) A
the ball is a balloon
2-c BUBBLE POPPING   (see gif)
the ball is lots of bubbles that vanish when touched

3. dancing

ENVIRONMENT - DARKER

3-a BALLERINA MIRROR
one wall turns into a mirror / classical music fills the room
3-b LEARN THE ROBOT
3-c DANCE TO DJ
music plays
3-d WALTZ
a chandelier slowly turns waltz music
3-e JAZZ
my Calder aerial slowly turns

4. animation

ENVIRONMENT - LIGHT

prebaked experiences from Animation Daffy creates
4-a KOONS
jeff koons dog jumps over head
4-b MUYBRIDGE
dissected horses run past
4-c FLAMINGOES
robot flamingoes shimmy through
4-d BENDER
long shot. bender walks through (we carry a cigar through)

31c. moments - playlists

MOMENT	AUDIO
1ai	001.wav
3a	3a.wav
2ai	002.wav
3b	3b.wav
4a	003.wav
1aii	004.wav
3c	005.wav
2b	2b.wav
3d	3d.wav
4b	006.wav
1ai	007.wav
3a	3a.wav
2aii	008.wav
3b	3b.wav
4c	009.wav
1aii	010.wav

The audio in this list can be added to up until the event. Pretty much.

32. the app/process for the 58 phones.

- People wait outside the booth, as described, get assigned a robot, and a sticker
- Phone is snapped into headset
- A focussing screen is presented to the user, as they are guided into the space
- Trackers are added to their hands
- When it's their turn, the 'VR - IN' person taps the side button three times
- They are now present in the room, and ready to go
- When their time is up, a 'VR - OUT' person taps the side button three times
- Headset and hand pieces are removed
- User is free to stand and watch the space inside as long as they like now
- They step out into main area to decompress, and share stories.

that's all folks!

HOLO - DOODLE
colour schemes

1. drawing

2. physical

3. dancing

4. animation

DAFFY
LONDON

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