

UBIQUITOUS URBAN EXPRESSION

The Influence of Graffiti Typology on Emotion in Different Urban Spaces

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Scenarios of spatial resistance



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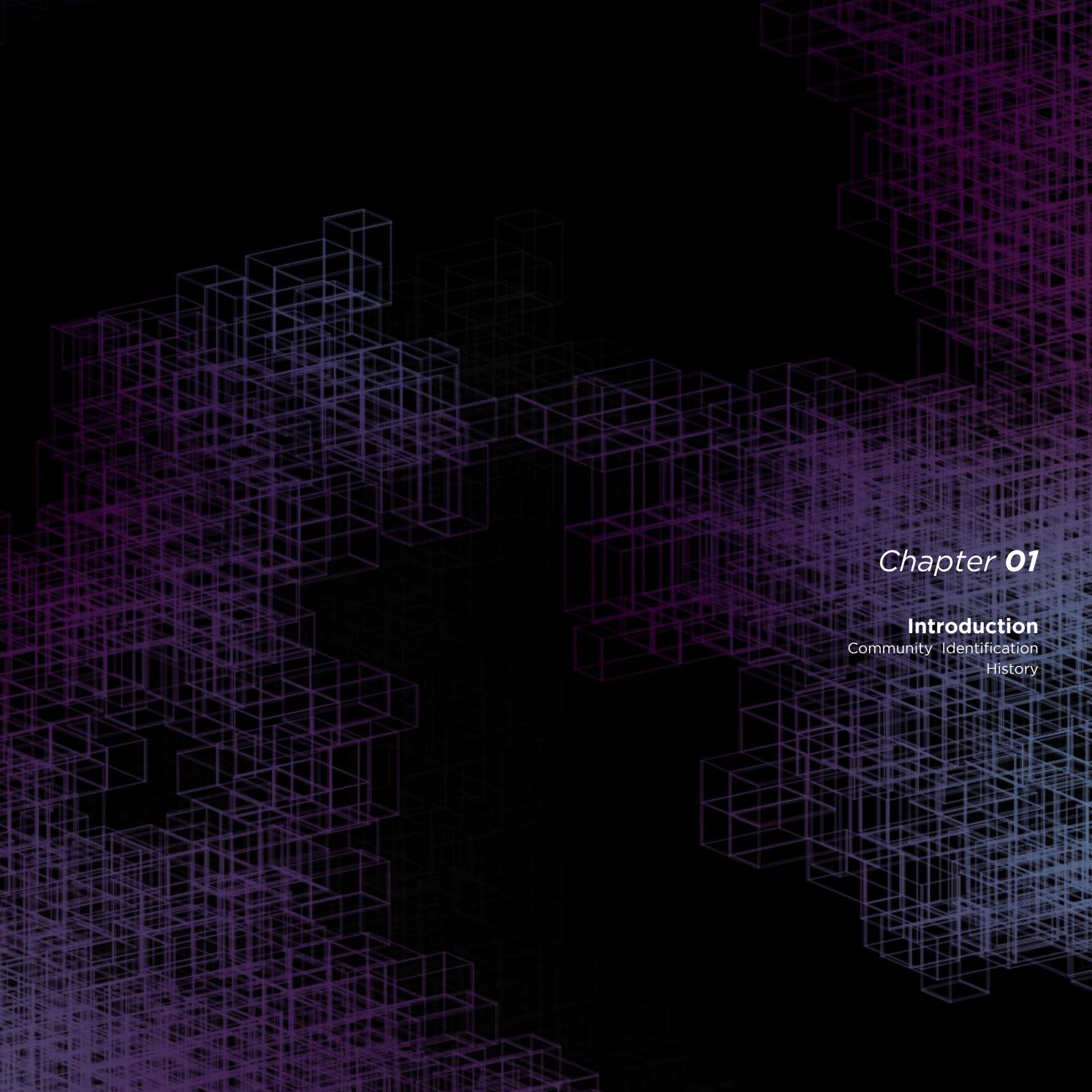
ABSTRACT

The research delves into the complex interplay between graffiti categories, urban spaces and emotional responses, focussing on the London borough of Shoreditch. Through a multifaceted approach, the evolving perceptions, distribution and impact of graffiti on emotional arousal are investigated. By exploring graffiti as a form of communication and expression, the plurality of perspectives within the community of graffiti artists is analysed, distinguishing between legal and illegal practices. The importance of protecting and promoting the independence and diversity of street art, avoiding its total commercialisation and normalisation, helps to preserve the original creativity and authenticity of the art. Geographic Information System (GIS) data and image analysis techniques were used to reveal the spatial distribution and visual attractiveness of different graffiti types and their correlation with density and colour richness. Meanwhile, correlations between graffiti density, spatial integration and emotional responses were identified using sensor technology and an Arduino-based mood test to measure participants' emotional arousal to various graffiti types and urban environments. The findings emphasise the importance of sightlines and spatial proportions in shaping the emotional experience in urban environments. A methodology for integrating attractive forms of graffiti with appropriate urban spaces is proposed in the design phase to disseminate graffiti culture and enhance the visitor experience. It is advocated to encourage diverse forms of expression in the city in order to promote social engagement and urban cultural pluralism, targeting an audience involving graffiti artists and graffiti enthusiasts, through which the city becomes more vibrant and creative.

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The background consists of a dense arrangement of wireframe cubes, primarily in shades of purple and blue, arranged in a staggered, three-dimensional grid that creates a sense of depth and perspective.

Chapter 01

Introduction

Community Identification
History

Community Identification

Graffiti artists community crowd analysis

Graffiti is art that is written, painted or drawn on a wall or other surface, usually without permission and within public view. Graffiti is a controversial subject. In most countries, marking or painting property without permission is considered by property owners and civic authorities as defacement and vandalism, which is a punishable crime, citing the use of graffiti by street gangs to mark territory or to serve as an indicator of gang-related activities.

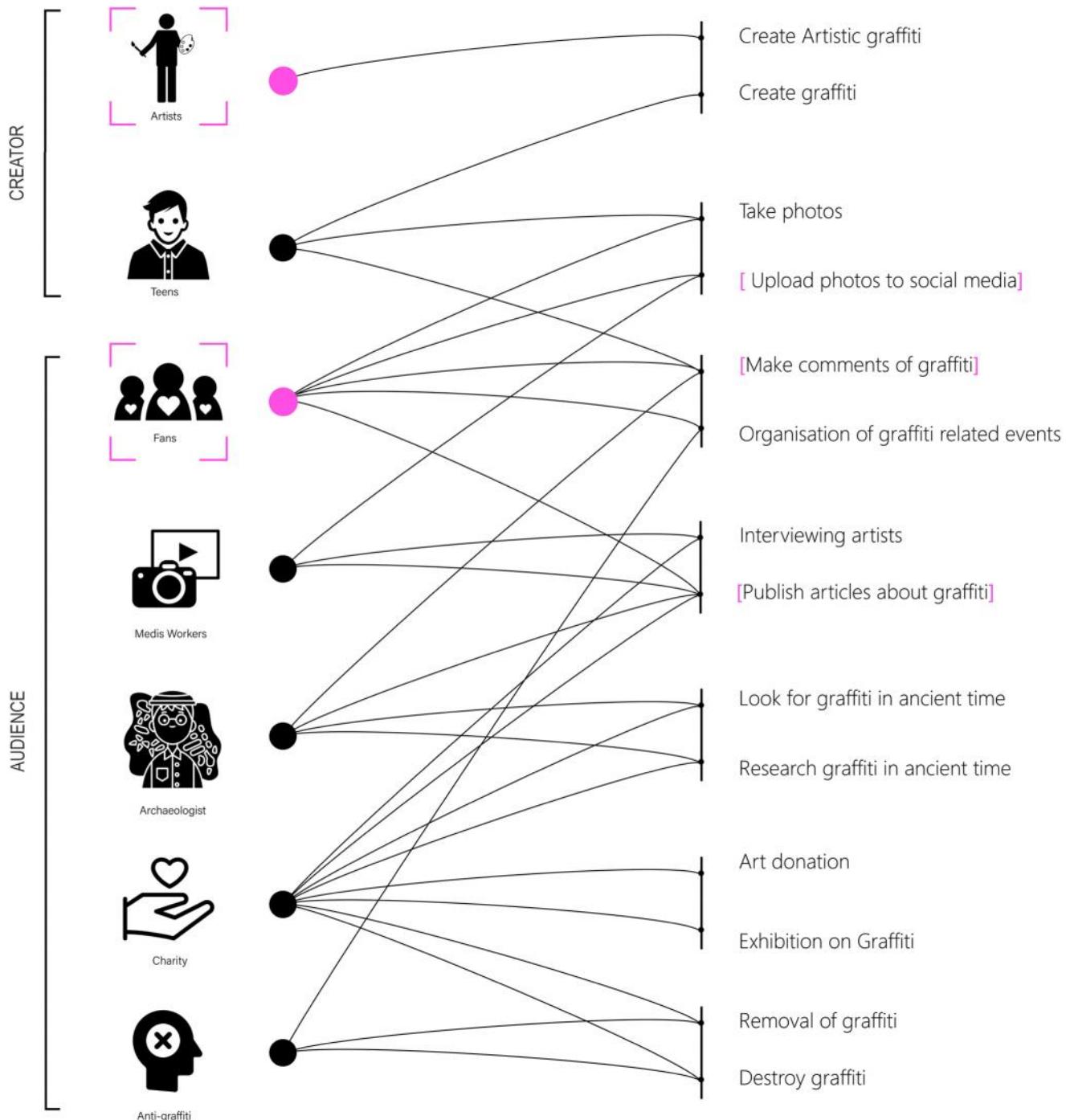
Some feel that "Graffiti can be seen as damage to the community, an eyesore or evidence of social

breakdown. It's considered an element of the "broken windows theory", the theory that even the smallest sign of disruption in a community can lead to more disruption, eventually escalating into gang warfare and a breakdown of law and order." Another evaluation is "The reality is that many people who create graffiti see themselves as artists, expressing themselves on a public canvas. The grammar of graffiti - its medium and techniques - is now the basis for some of the most imaginative, beautiful and profound street art, all with the blessing of its owners

and communities." "But I find myself becoming a little bored and frustrated when I find nearly identical images - that blocky, tagged typeface - echoing over and over again."

Others are neutral about Graffiti "This isn't all bad, or unoriginal, or uninteresting. Some of the graffiti imagery I encountered was expressive and raw. But for the most part, it feels like visual pollution. The sad reality is that most of the guerrilla art being produced these days is dross."





History

Graffiti artists community history

"The first contemporary graffiti artist"
CORBREAD



"Godfather of Graffiti"
Michelle Basquiat





1960S

Graffiti culture emerged in the 1960s in the Bronx, New York, USA, the poorest neighborhood in New York, occupied by blacks and Latino residents from North and Central America. Slowly, a group of youths scrawled crooked gang symbols everywhere throughout the Bronx to mark their turf, forming the earliest graffiti.

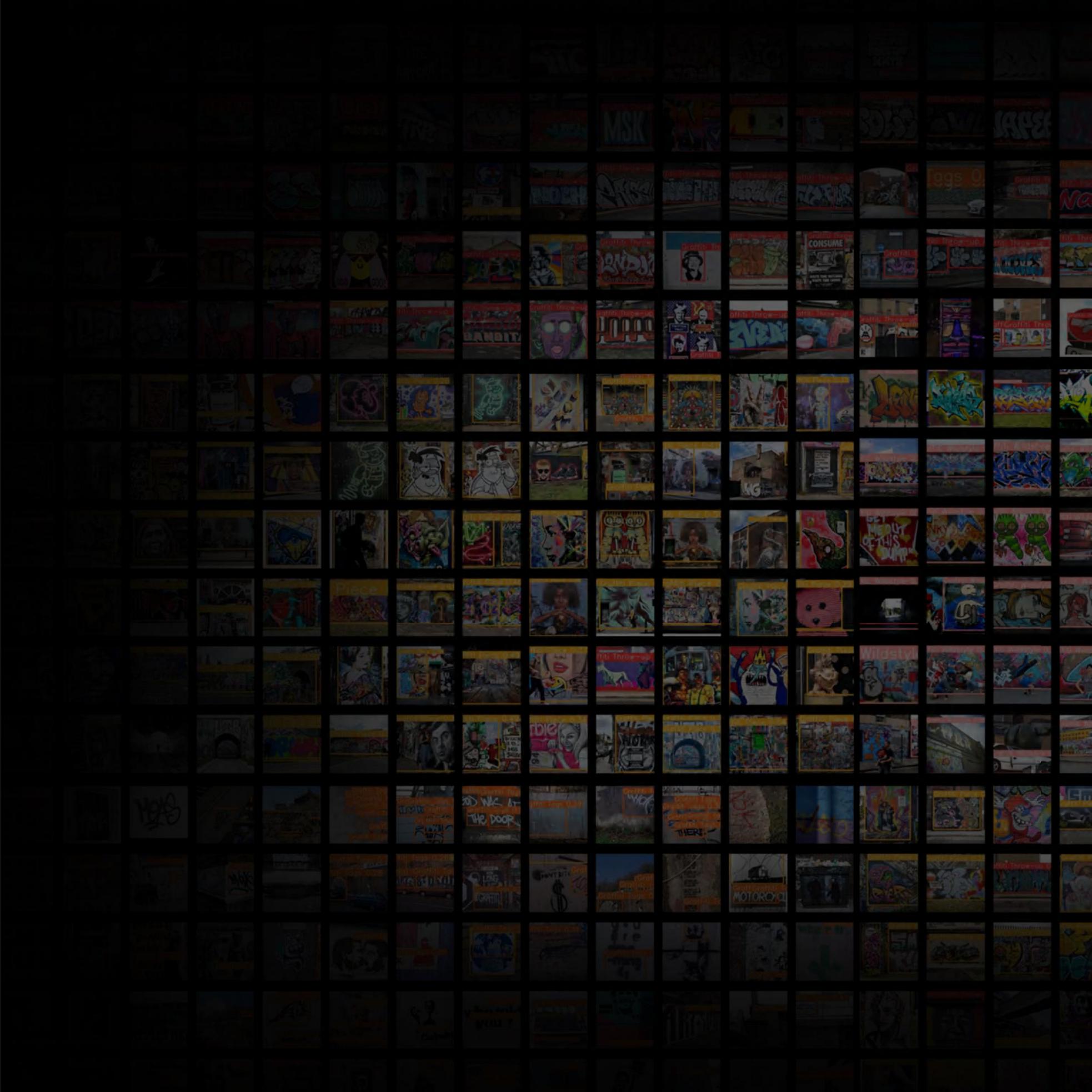
But most of the real graffiti artists have nothing to do with gangs. Graffiti enthusiasts change the form of graffiti, they have their own ideas, they have a talent for drawing, they are very expressive, they call themselves "writers", not "painters".

1970S

In the early 70's graffiti appeared in a simple form, some graffiti writers began to use the subway as the main way of graffiti, New York has the most developed subway system in the world, New York subway graffiti in the 70's ~ 80's entered a golden age, its style spread all over the world and mixed with local customs and traditions.

1980S

A hippop culture documentary called Wildstyle came out of nowhere to tell the story of the development of early Hippop culture in the United States. Hip hop culture began to spread from the United States began to spread to Europe, more and more graffiti writers began to cooperate with galleries, hip hop culture in the development of gradually reached.



Chapter 02

Graffiti in London

Interview

Comments

Geographical Analysis of Graffiti

Sentiment Analysis

Graffiti Typology Analysis

Graffiti Color Analysis

Graffiti Feature Analysis

Interview

Online interview with graffiti artists

The interviews were conducted both online and face-to-face, and the aim of the interviews was to find out the artists' views on graffiti and the general public's acceptance of graffiti. Interviews with six artists and one photographer revealed that: within this group, some are professional graffiti artists who put their skills and creativity into legal projects, such as working on a legal graffiti wall in London. On the other hand, there are others who choose to do graffiti in an illegal way; they may work on city streets, ruins or other unauthorised places. Together, these two approaches form part of this community.

Artist 01



Do you think graffiti is currently an art accepted by the public?

 Yes to a certain extent, it is slowly becoming more recognisable as an art form.

What do you think can make graffiti more popular among people?

 People being able to relate with graffiti, if people can't relate, they struggle to understand. And a lot of people are scared of what they don't understand.

Would you mind to tell us what kind of environment or space do you usually prefer to draw a graffiti?

 I very very rarely paint what people would class as graffiti, but if i do, i go to local legal walls, im more of what you would call as street artist now,as i mainly focus on painting portraits and progressing as an artist.

And why do you like to draw graffiti?

 it's not so much graffiti i like. it's more the medium (spray paint).i like how versatile it is and how much of a challenge it is to use.Why i like art is because it takes me out of my mind. It's like a sort of meditation for me,where im most at peace and nothing else matters apart from what im creating.

Artist 02



Do you think graffiti is currently an art accepted by the public?

 yes and no.
it is now popular due to the artist BANKSY who made street art & graffiti popular in the mainstream around 2000 and onwards...
Prior to this (last century) 1980-2000 graffiti was very negative to the mainstream and seen as a criminal act, dirty, and lowered property values

Actually we are now researching the graffiti artist community in London, and found that some place like Shoreditch contends the most graffiti. So maybe you are more familiar with it, do you know why the graffiti would gathered in some exact space?

 Shoreditch and brick lane area is a middle class trendy area today mainly inhabited by well to do young people without children with well paying jobs. The whole area is occupied by young people not just residential but also business. They think the graffiti and street art is "cool" so it is allowed to be painted there and brings interest from tourists and the mainstream public - therefore is seen as a good thing for the area. Also, shoreditch is the base of many graffiti companies (mainly global street art) is based there and they lease wall space to companies who want to use street art as an advertisement and they pay graffiti artists to do the work (like me). Most of the large scale artwork in shoreditch is actually a corporate advertisement paid for to look cool and appeal to the younger generation.

 Actual or Real graffiti is a lot more complex with a very long and complex history dating back to 1969 in manhattan NYC. It migrated to Europe around 1982/3, and is painted on buildings trains and train tracks illegally (and still is today)

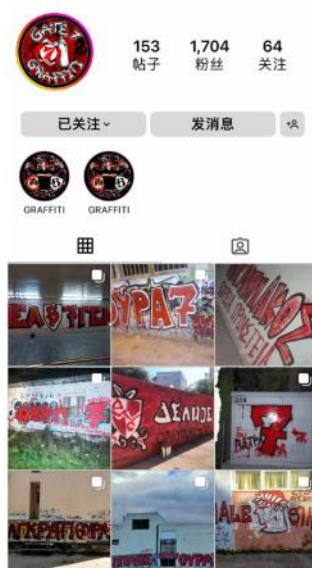
there are many types of graffiti within the graffiti community:
"street art", "graffiti art", "legal graffiti", "train graffiti", "illegal graffiti",
"graffiti murals", "street graffiti", "trackside", "corporate graffiti"
The people that paint all these types of graffiti usually only stick to one type of
graffiti maybe at the most two.
within the graffiti community you can find maybe 5 or 6 different types of graffiti
painter and they dont really get on with each other, they tend to stick with the
similar graffiti type as them. For example the graffiti artist in shoreditch painting
a large portrait of a swan looking beautiful does not hang around with the graffiti
person that paints illegal trains and streets.

Graffiti artists generally agree that graffiti art has gained popular acceptance. They noted that many people's attitudes towards graffiti have changed, seeing it as an art form and no longer just a symbol of illegal behaviour. Comments and feedback on social media platforms seem to bear this out, showing that graffiti art is becoming more popular and recognised.

Artist 03



Artist 04



Do you think graffiti is currently an art accepted by the public? A

especially in Papua. Most people cannot differentiate between graffiti and murals. And after only 2 years, Jayapura Graffiti (JayGraff) is slowly helping to open up people's understanding of graffiti. At first it was difficult for the public to accept, because it polluted every side of the city and harmed many parties, but we have a way to make graffiti acceptable, especially in Jayapura - Papua. We combine **graffiti and Papuan cultural arts so that slowly the public and government begin to accept us.**

Do you have some prefer space to painting the graffiti? A

The street is the best space to work

Why do you like graffiti, is it kind of way to express rebellion? A

I'm @baby_.traizzer personally, me and my friends' from "JAYAPURA GRAFFITI did not carry out a rebellion in JAYAPURA - INDONESIA. My friends and I just love graffiti and just want to convey the message that doing art can be done anywhere, anytime and in any media. because we do more activities on the road so we do media on the street.

How to attract more people to enjoy graffiti?
I mean in what kind of way to spread A

the way we do it in Jayapura - Papua.
We always hold street art activities every week.
we collaborate with all hip-hop elements such as RAP, DJ,
BRIKEDANCE, BEAT BOX, and GRAFFITI.
and we educate HIPHOP as street art which is not just a hobby, but can become a profession.
Apart from that, we hold a mobile **graffiti class every week**.
for elementary, middle and college students.
so that there will be regeneration in the Land of Papua - Indonesia.

Do you think graffiti is currently an art accepted by the public? A

No, only 13 and horse feed accepte this m*f*, no gate 7 they say
terrorists criminal organization.

Would you mind to tell us what kind of environment or space do you
usually prefer to draw a graffiti? A

NO
Only illegal graffiti
F*** cops

And why do you like to draw graffiti? A

I like to vandalize shits.
Its way of life.

So do you think graffiti art has the potential to reach a wider people? A

No we dont want that.
Graffiti is underground.

Okay,I see, but how can let more people join in this wat? A

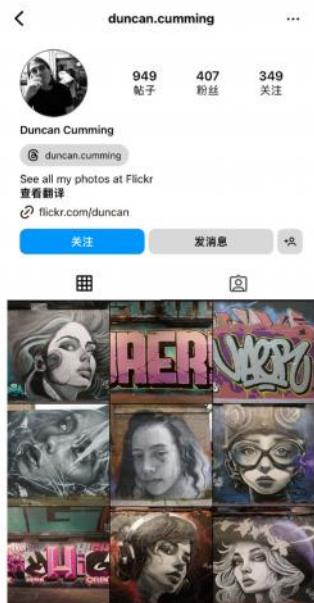
By violence.

Interview

Online interview with graffiti artists

However, despite the fact that graffiti has become somewhat socially acceptable, there are still many graffiti works that are not. This may be due to the fact that some graffiti works are considered to be destructive, illegal or immoral, thus causing a public backlash. Whilst graffiti artists endeavour to change this perception by creating work that is meaningful, aesthetically pleasing and legal, the community still has to deal with negative public and legal views and reactions to their activities.

Artist 05



duncan.cumming

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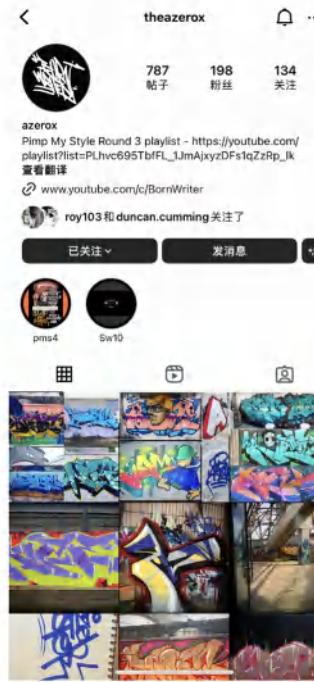
Thank you sir,I'm very curious, youpost lots and lots of photos on Flickrdoes that mean you are also a graffitiart creator? A

No,I only take photos

OH! You're a photographer, so do you know of any communities of graffitiartists, and what kind of people are these who create graffiti? A

the people,predominantly male, of all kinds of backgrounds and ages.Often people who are, or end up, working in areas like graphic designThe best way would be to go anywhere people are painting to find more. The best book perhaps to find out more about the history and sociology is perhaps "Graffiti and Street Art" by Anna Waclawek (Thames & Hudson)

Artist 06



theazerox

787 贴子 198 粉丝 134 关注

azerox
Pimp My Style Round 3 playlist - https://youtube.com/playlist?list=PLhvc695TbfL_JmAjxyzDFs1qzRpl_k
查看翻译
www.youtube.com/c/BornWriter

已关注 v 发消息

Do you think graffiti is currently an art accepted by the public? A

It has certainly been accepted by the public however many of the artists are still relatively private people. Some don't crave the attention and some are still underground and do not work in legal spaces, to them it is a countermovement against society - a self indulgent pastime liaison

Was graffiti still just a hobby and inspiration when you were working twenty years ago, but around when did graffiti start to receive commissions? A

As I've been around since the beginning of UK graffiti still hold the Old school values - it has changed so much over the years and so has the mentality of the writer - now Street Artists infiltrated a pure culture (graffiti) and that brought it more into the public eye - as in China people like what they can understand and recognize - Letters which what Graffiti is not easy for people to relate to however a cute character or cartoon character is easily identifiable

Do you know of any graffiti artist communities in London, I'm very curious as to what kind of people these graffiti creators are? know that graffiti may have been a symbol of rebellion in the past, so in today's society, do you think that this graffiti art has been accepted by the public? A

In the beginning to take a commission was a bad thing - amongst other artists we would be called sell outs we would get hate from the other artists but perhaps when some known guys did get some commissions then we realized we could get free paint and cash for doing what we were doing anyway - back then we didn't buy paint we had to rack it - steal it so free paint was so good. It was all about gaining recognition by our peers - we didn't care about society so suspect society entered our world to control or at least try to control our culture

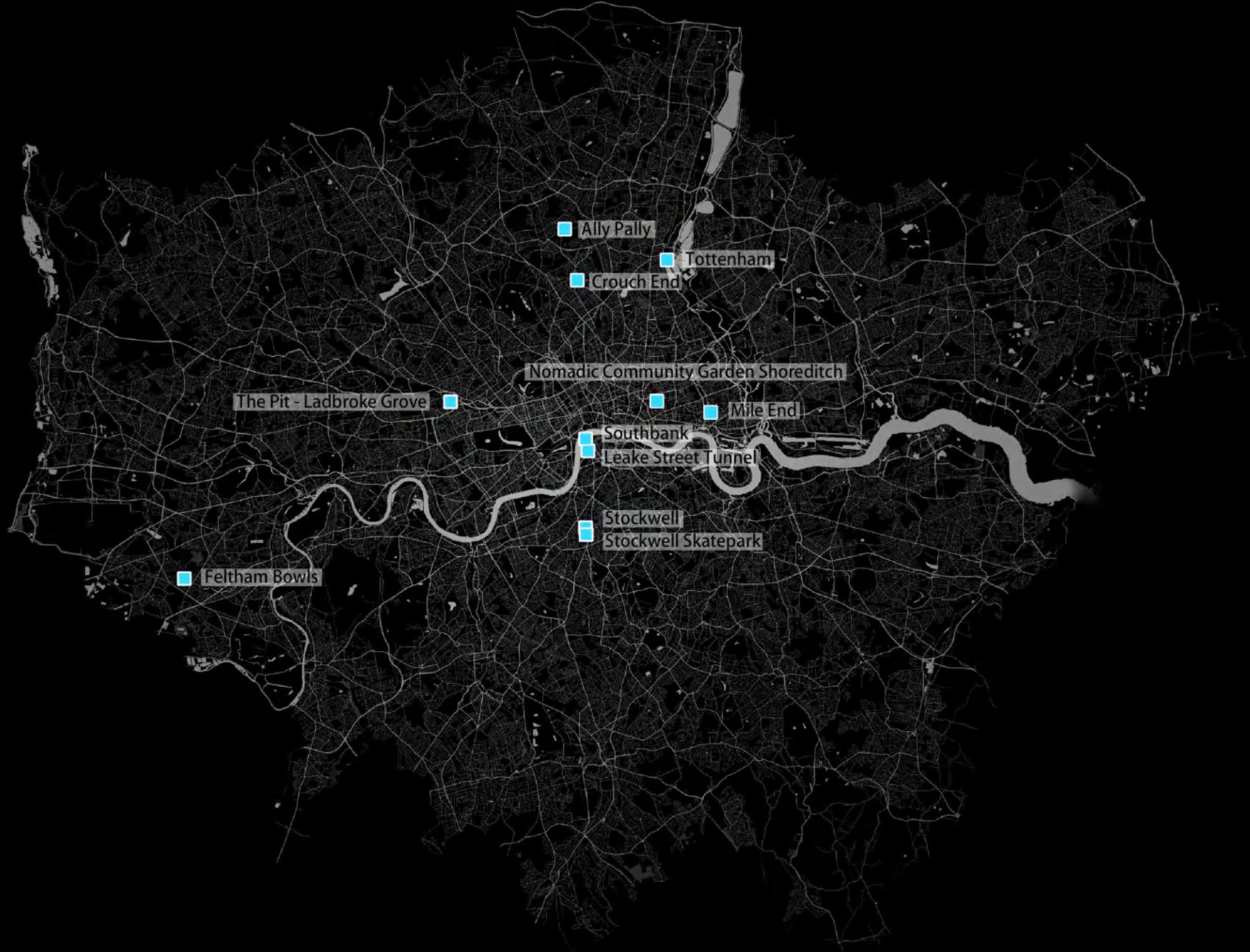
Interview

Online interview with graffiti artists

There are 11 locations in London with legal graffiti walls, giving graffiti artists a space to display their work, while also giving visitors and residents the opportunity to admire and explore. Among them, Shoreditch, located in East London, is one of the

important bases of graffiti art in London. There are many graffiti walls and graffiti art galleries here. Brick Lane is one of the most iconic streets in the area, where visitors can admire various styles of graffiti.

Graffiti Legal walls in London



Comments

Comments of graffiti in flickr

Graffiti art is indeed becoming more accepted by the public, as evidenced by the increasing number of positive comments on the site, but it's important to acknowledge that there is still a large amount of

graffiti that is considered unacceptable. Despite the growing popularity of graffiti art, efforts to distinguish legitimate graffiti art from vandalism continue.



Geographical Analysis of Graffiti

Graffiti distribution in London

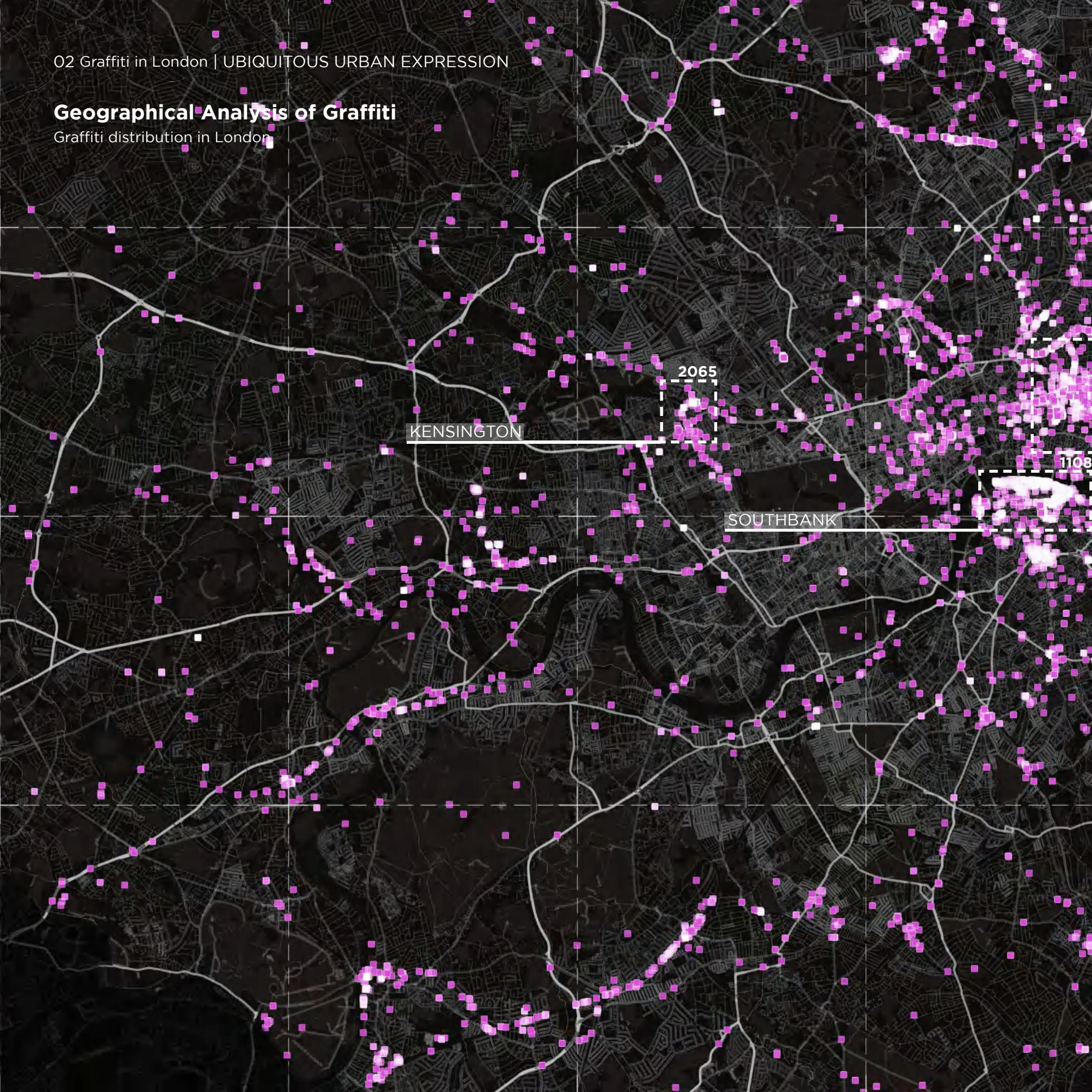
Using Qgis to obtain more information about graffiti, obtaining the location and information of **47522** graffiti-related photos on Flickr to determine the

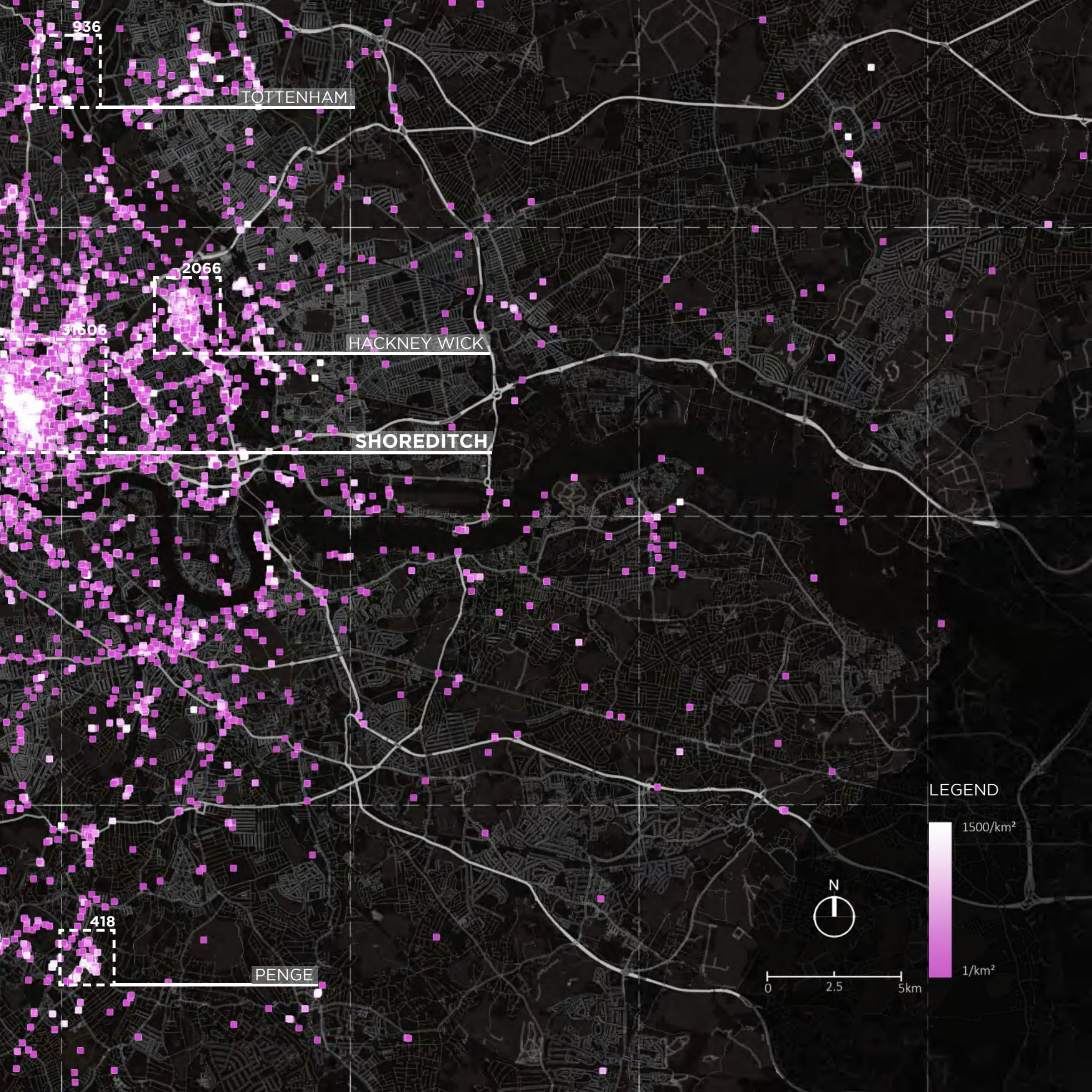
distribution of graffiti in London. From this we found that London's shoreditch area has the highest amount of graffiti.



Geographical Analysis of Graffiti

Graffiti distribution in London

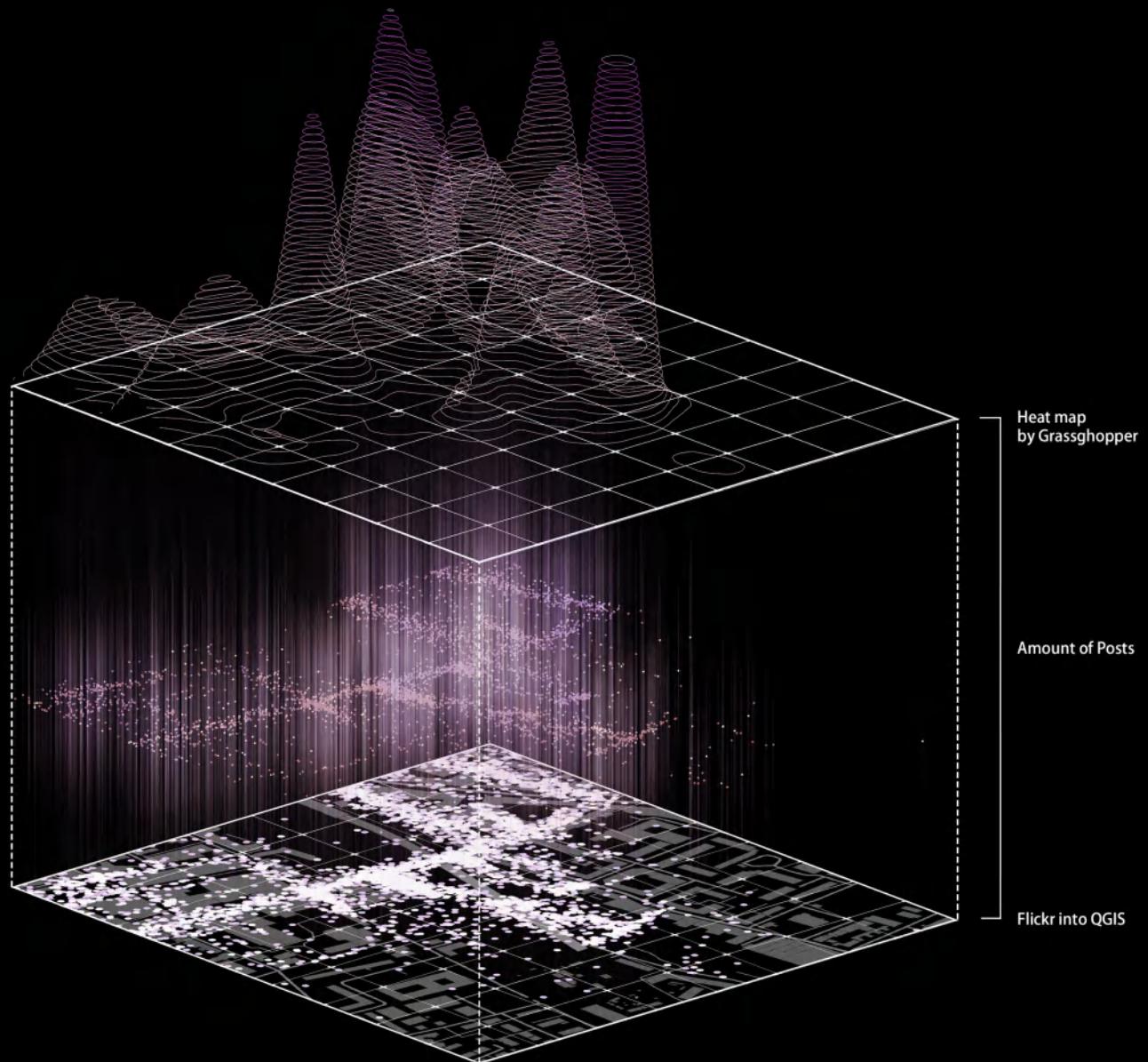




Geographical Analysis of Graffiti

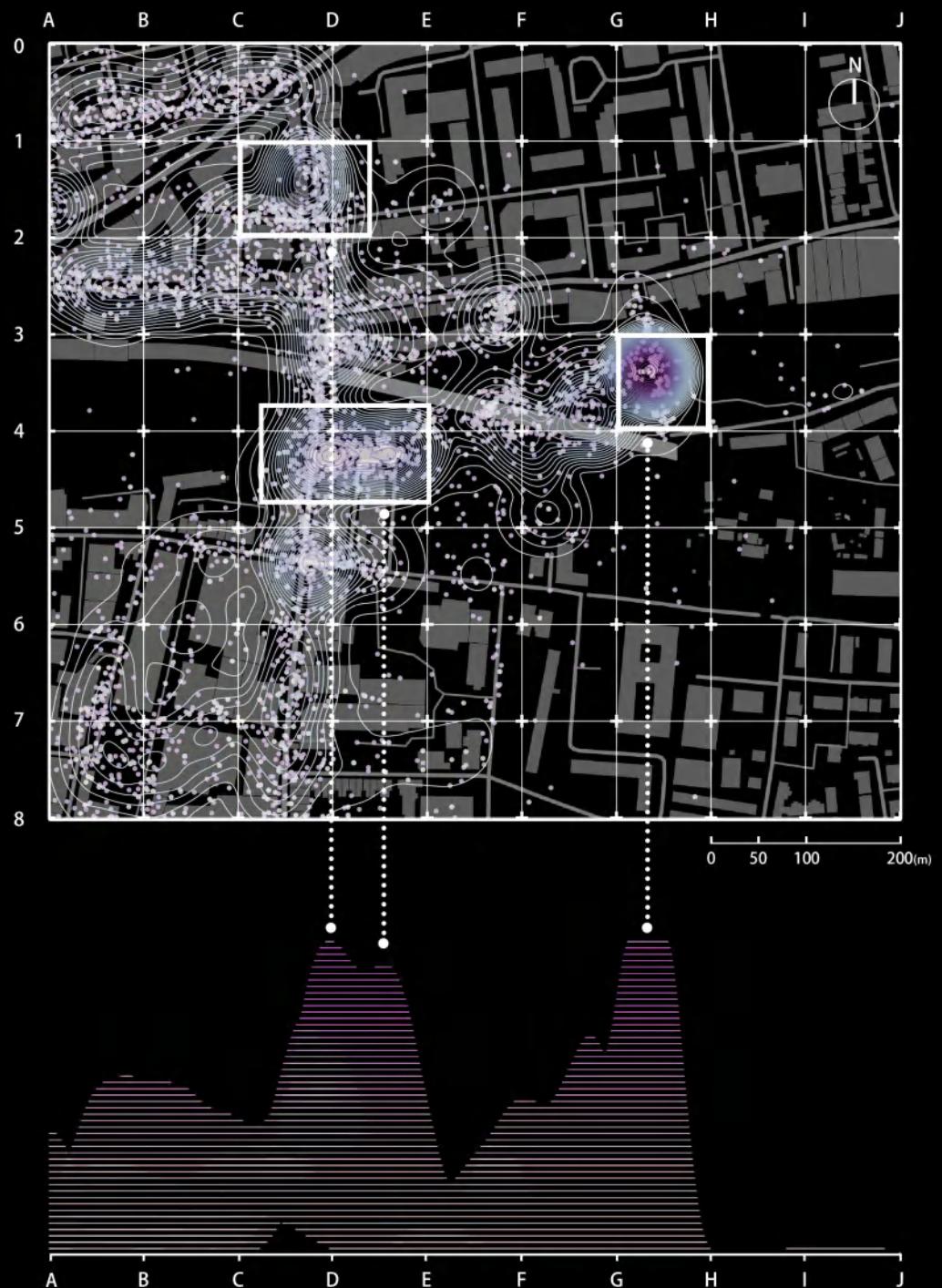
Distribution of graffiti in Shoreditch

The Shoreditch area was chosen as the main location for the study as it had the highest number of graffiti counts. Further research into the distribution of graffiti in this area.



O2 Graffiti in London | UBIQUITOUS URBAN EXPRESSION

Graffiti in the Shoreditch area is mainly distributed along roads, with the main aggregation roads being Brick Ln and its surrounding roads, and the density of graffiti distribution in this area was also derived from heat maps, which identified three main aggregation zones for graffiti, two on Brick Ln and one on the legal wall in the Shoreditch area.

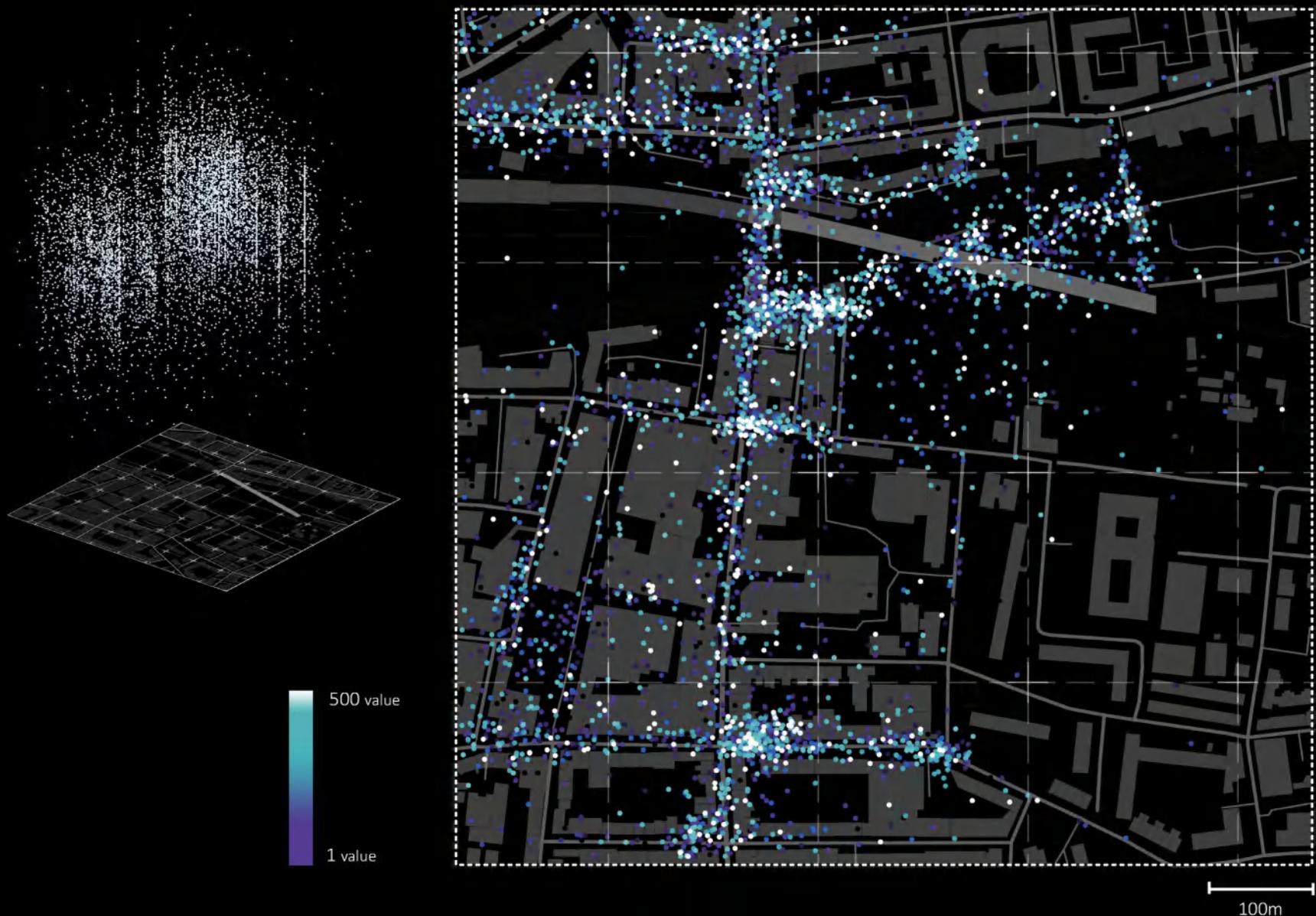


Attractiveness Analysis

Graffiti image attraction value map

A literature search revealed that different image features have a strong impact on visual appeal. We created a data set based on images obtained from Flickr. Through this data set, we visualized the image feature values. Based on this, we can get the overall

attractiveness of the graffiti in the shoreditch area. We found that the attractiveness almost overlaps with the density, and we can know the graffiti. There is a positive correlation between the density of the distribution and the degree of attractiveness.



Attractiveness Analysis

Graffiti image attraction value classification

Image analysis was performed on these four image features in the dataset: color entropy, color disparity, sharpness and stereo. The numerical value of each

image is obtained through the computer, and the attractiveness value of the image is obtained by adding the four values.

image gathering		Disparity value	Entropy value	Edge Count value	sharpness value	sum value	Latitude	Longitude
2	2009-4-5 17-10_51.522055_-0.072172_2009-4-5 17-10.jpg	5	56	1	59	121	51.522055	-0.072172
3	2010-7-23 14-03_51.523243_-0.070638_2010-7-23 14-03.jpg	7	53	3	63	126	51.523243	-0.070638
4	2009-4-5 17-09_51.522055_-0.072172_2009-4-5 17-09.jpg	6	57	1	68	132	51.522055	-0.072172
5	2017-1-27 2-00_51.520427_-0.072006_2017-1-27 2-00.jpg	35	37	14	73	159	51.520427	-0.072006
6	2007-1-5 16-57_51.523434_-0.070724_2007-1-5 16-57.jpg	17	70	11	64	162	51.523434	-0.070724
7	2006-10-7 14-54_51.52302_-0.06831_2006-10-7 14-54.jpg	37	46	14	75	172	51.52302	-0.06831
8	2006-6-6 9-45_51.522933_-0.071634_2006-6-6 9-45.jpg	25	62	15	73	175	51.522933	-0.071634
9	2010-2-3 20-11_51.522496_-0.071636_2010-2-3 20-11.jpg	16	73	14	73	176	51.522496	-0.071636
...
8148	2012-7-30 19-04_51.521294_-0.071775_2012-7-30 19-04.jpg	69	99	166	91	425	51.521294	-0.071775
8149	2012-10-7 6-35_51.521294_-0.071775_2012-10-7 6-35.jpg	76	98	162	91	427	51.521294	-0.071775
8150	2017-12-18 14-56_51.523697_-0.073106_2017-12-18 14-56.jpg	52	98	191	89	430	51.523697	-0.073106
8151	2015-6-14 15-32_51.52268_-0.071037_2015-6-14 15-32.jpg	74	98	170	89	431	51.52268	-0.071037
8152	2012-10-14 16-54_51.521294_-0.071775_2012-10-14 16-54.jpg	75	98	170	92	435	51.521294	-0.071775
8153	2015-6-14 14-46_51.520183_-0.07042_2015-6-14 14-46.jpg	70	98	182	92	442	51.520183	-0.07042
8154	2013-6-22 3-46_51.521294_-0.071775_2013-6-22 3-46.jpg	66	99	199	92	456	51.521294	-0.071775

Step1:Image collection through flickr API

Step2:Sentiment value by python

Step3: Addition value

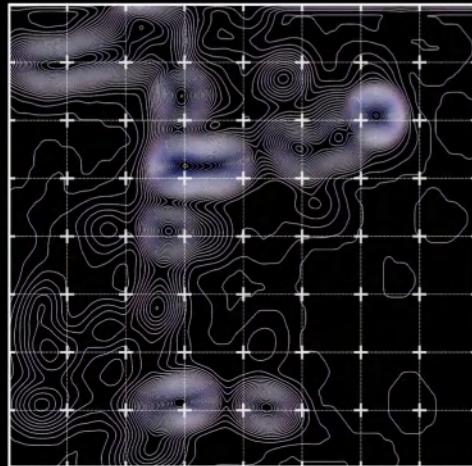
Step4:Sorting

Step5:Determine the location of the image

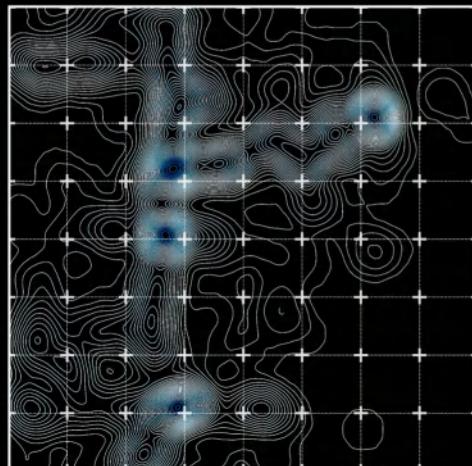
Sentiment Analysis

Graffiti image attraction value map

The graffiti attractiveness was determined to be high or low by ranking the values based on the summed values, defining the top 20% of the ranking as high attractiveness and the bottom 20% as low attractiveness. There were a total of 1,483 photos for high attractiveness and 2,441 photos for low attractiveness. The data was then visualised according to the latitude and longitude of the image bands and contour lines were drawn to show the density of the images.



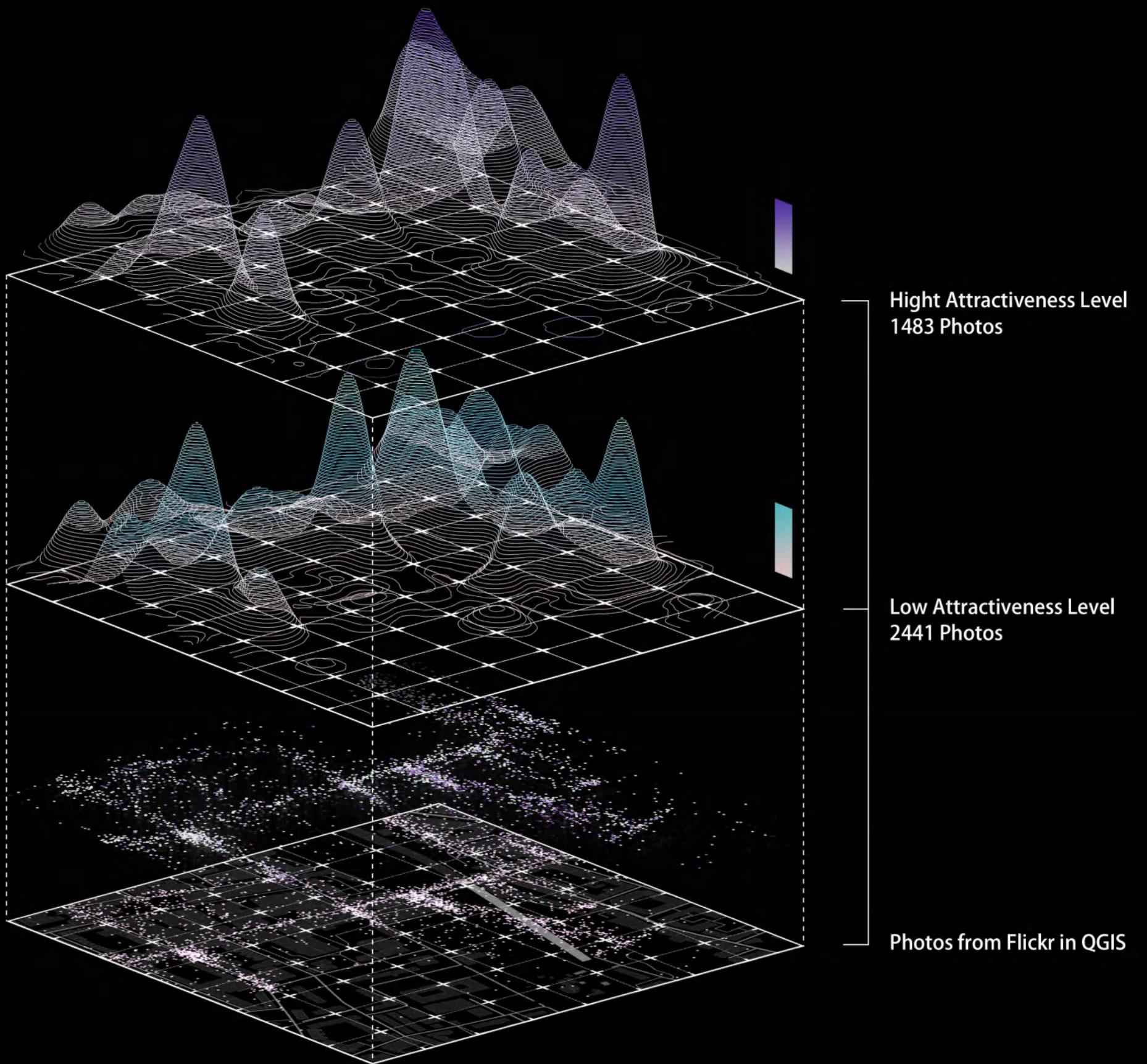
Density of
High Attractiveness Level



Density of
Low Attractiveness Level



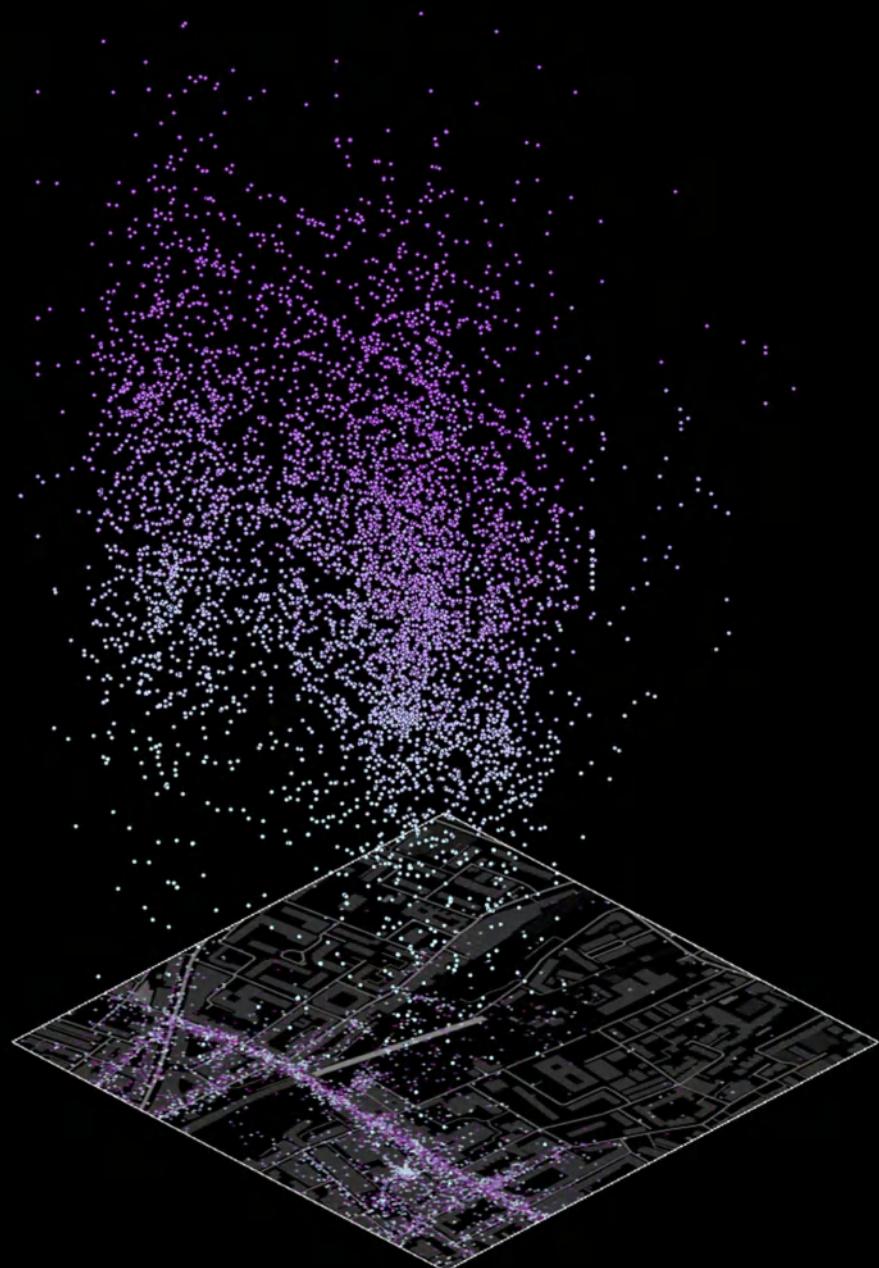
Distribution of
graffiti in Shoreditch

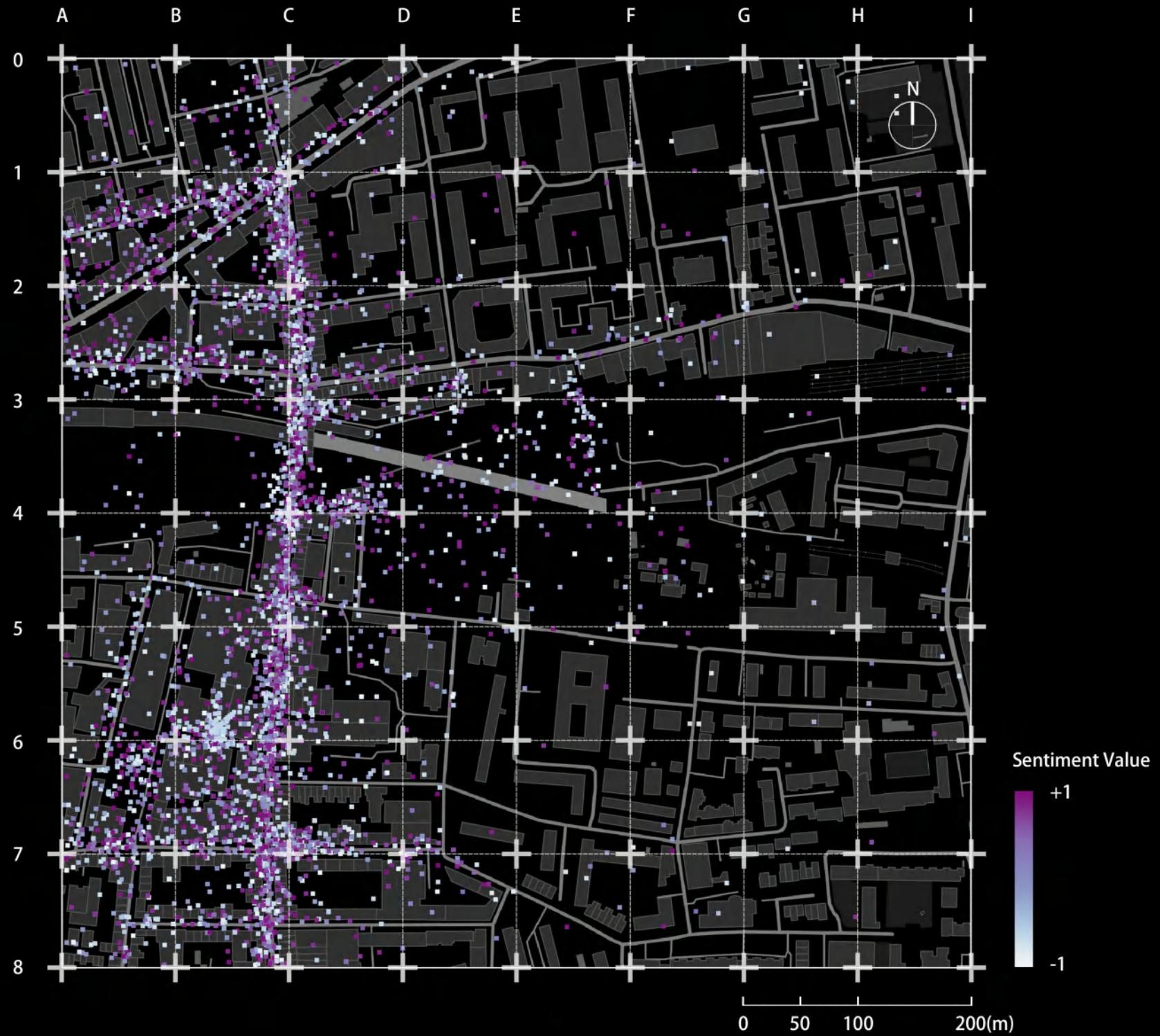


Sentiment Analysis

Graffiti image sentiment value map

By using TextBlob to analyze all the Flickr photos from the Shoreditch area, we can assign sentiment scores to each photo and compute an overall sentiment value for the entire region. Specifically, we will apply the TextBlob tool to process the textual descriptions of each photo through natural language processing techniques to extract relevant sentiment information. This information includes the intensity of positive, negative, or neutral emotions, allowing us to derive a comprehensive sentiment score that reflects the overall emotional tendency of the Shoreditch area.

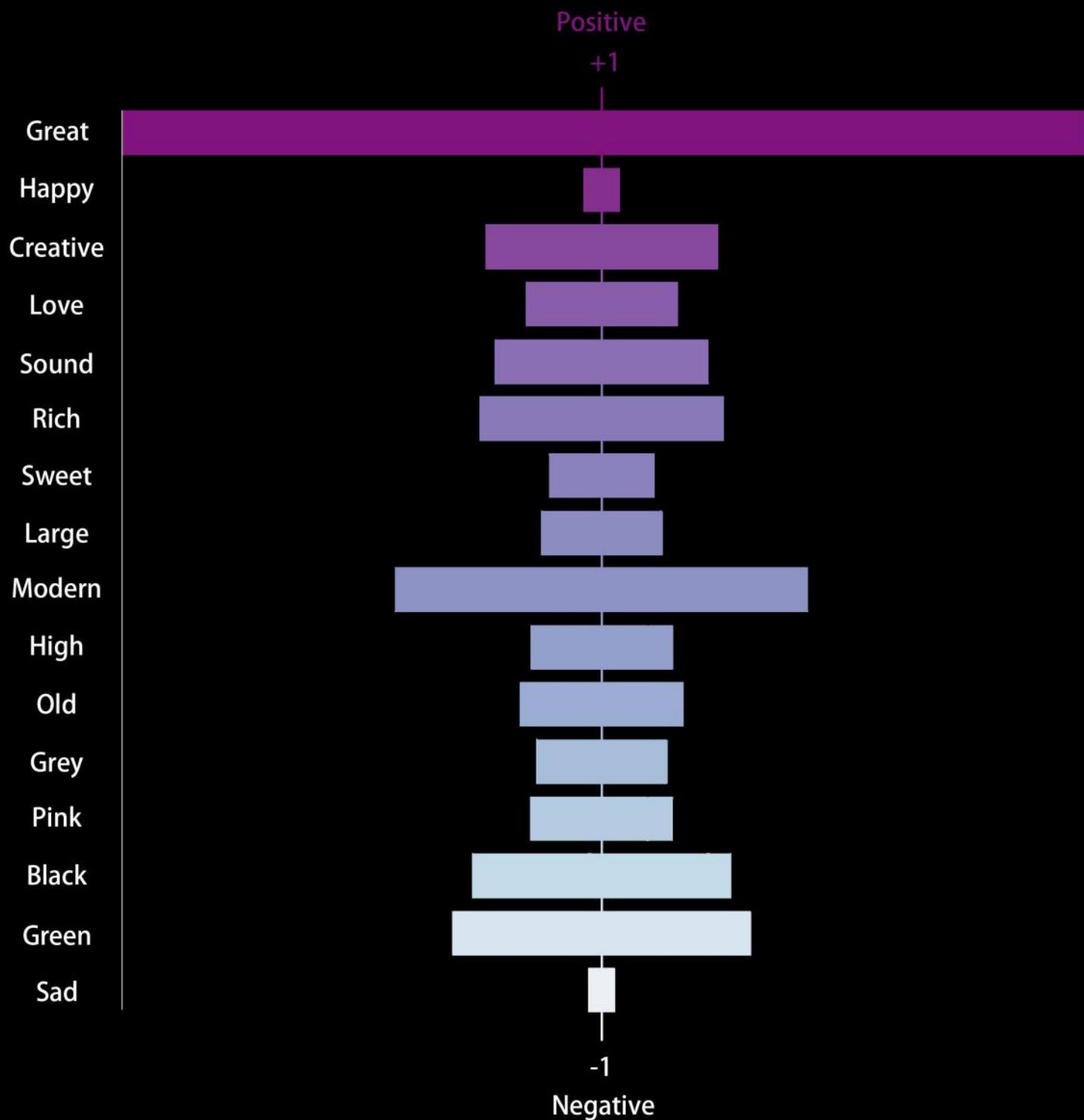




Sentiment Analysis

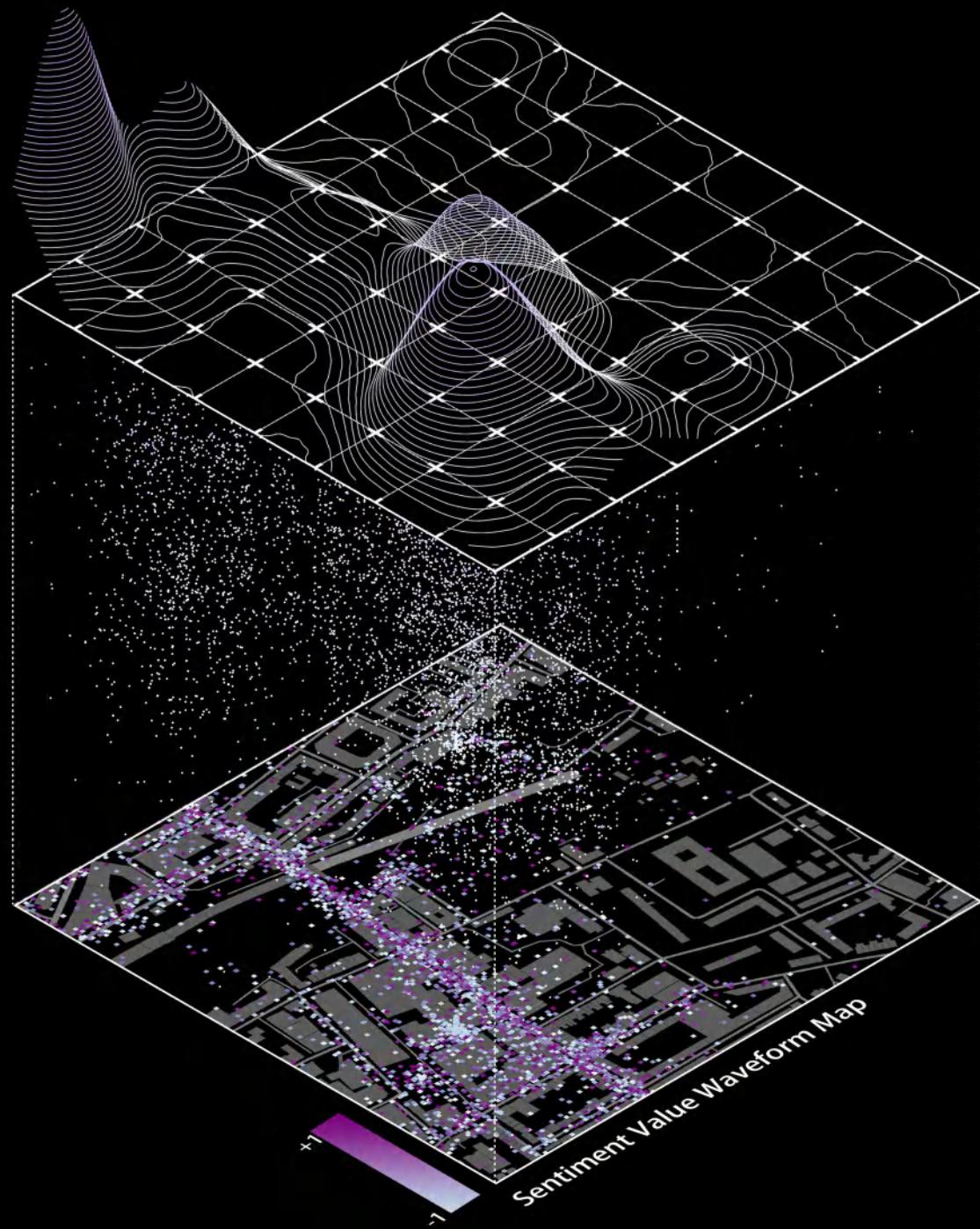
Graffiti image sentiment analysis

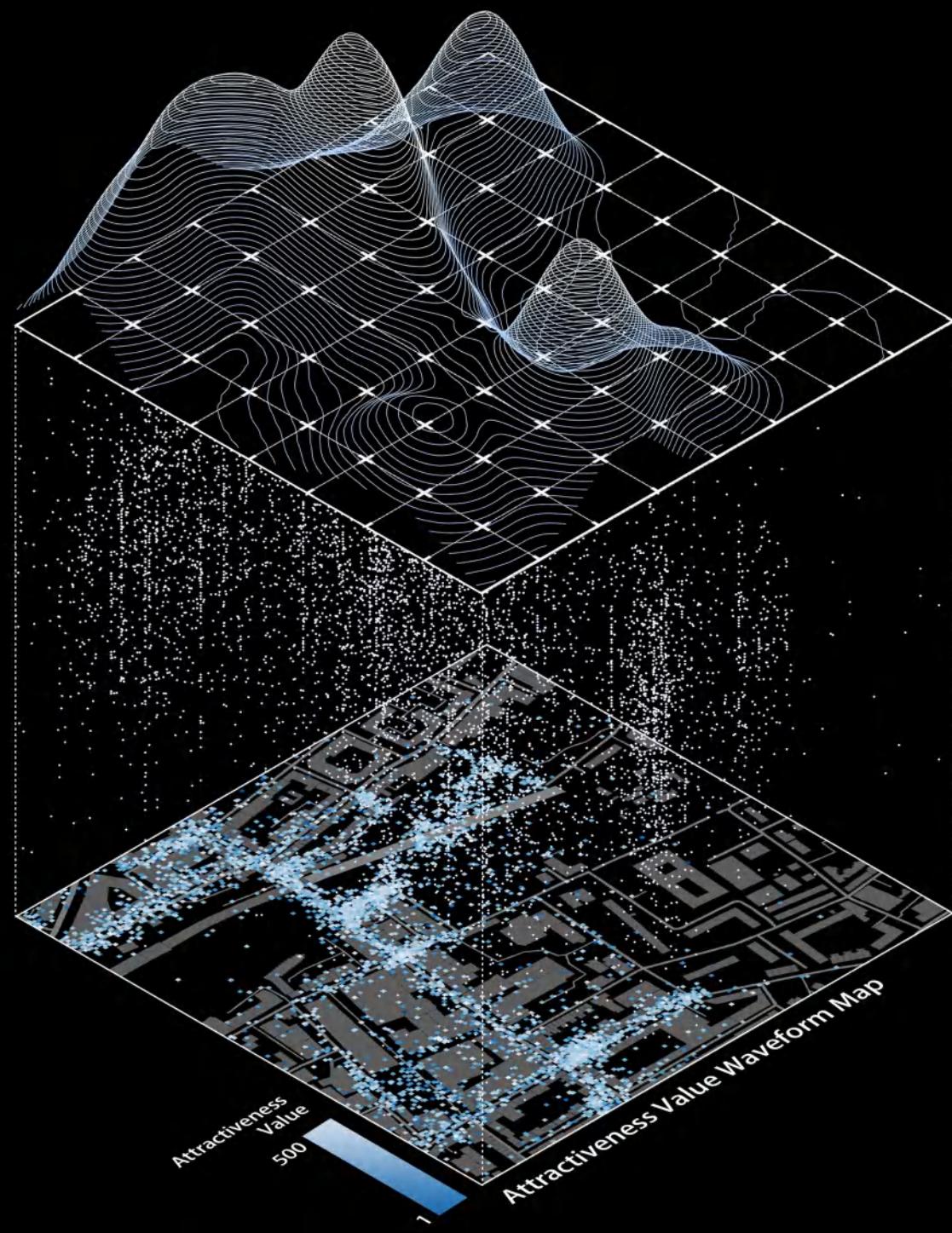




Comparison of Sentiment and Attractiveness

Visualization of values

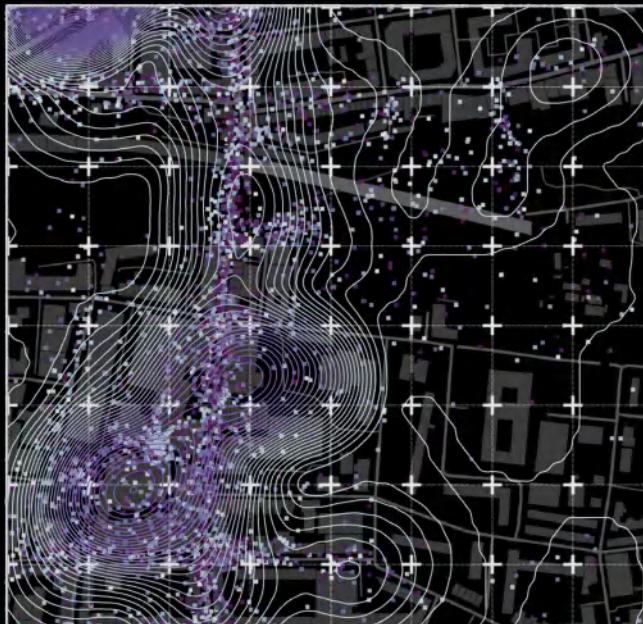




Comparison of Sentiment and Attractiveness

Visualization of values

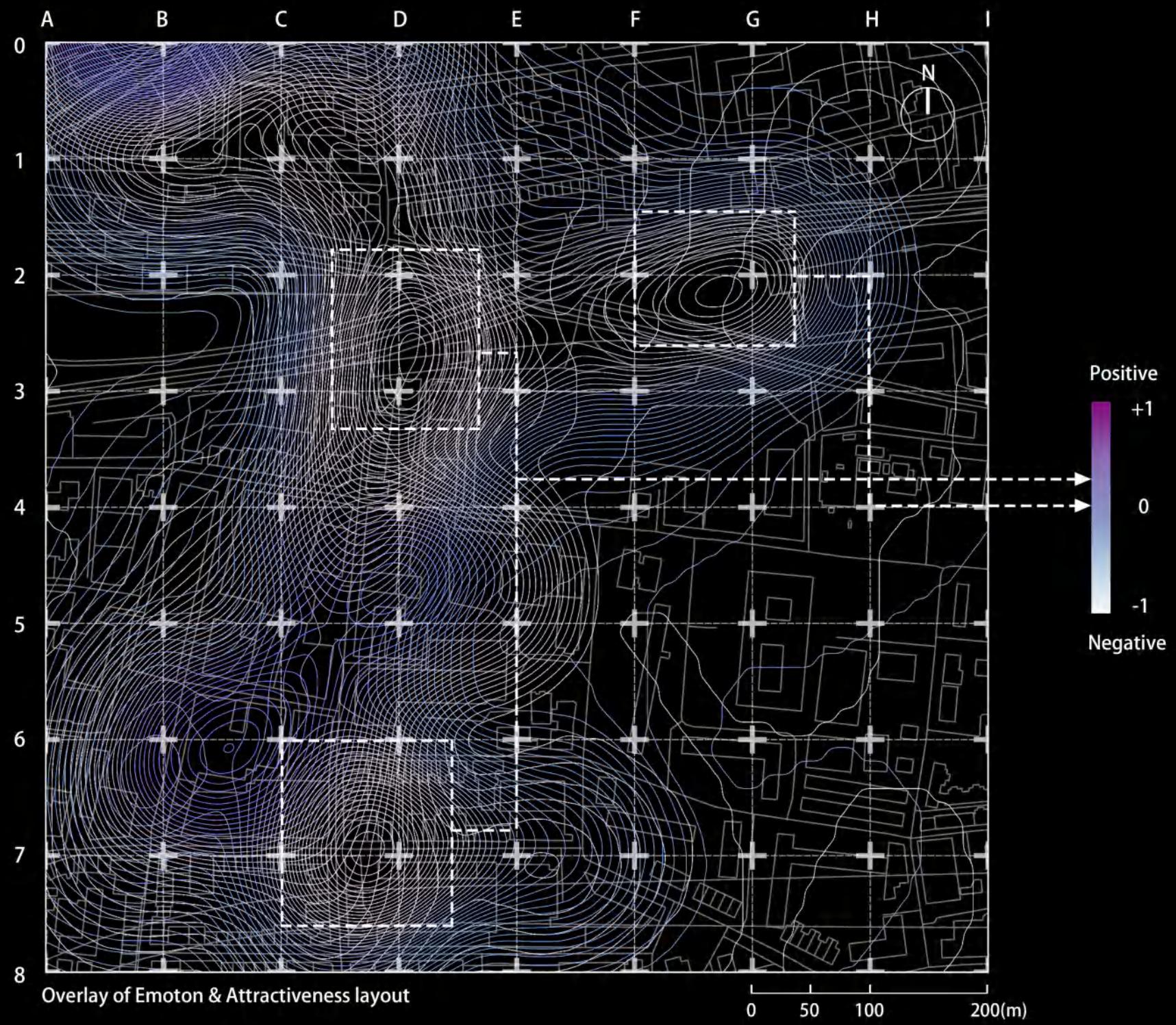
The sentiment analysis results were compared with the attractiveness map of the Shoreditch area. The analysis revealed that graffiti is a significant factor influencing the mood of the area. Specifically, a correlation was observed where locations identified as highly attractive on the map also tend to have a higher concentration of graffiti. This suggests that areas with more graffiti are perceived as more engaging or visually stimulating, which may contribute to their overall attractiveness. The presence of graffiti appears to play a notable role in shaping the emotional ambiance of these popular spots.



Emotion layout



Attractiveness layout



Graffiti Typology Analysis

Graffiti typology identification

According to the literature, there are several basic types of graffiti, and tags are the simplest and most basic form of graffiti. They are usually simple signatures consisting of one or a few letters, named after the doodler's identifier. Due to their quick and simple nature, tags are often viewed as acts of vandalism to public property and are unattractive. Piece (or masterpiece) is a more refined and complex form of graffiti. These works often contain rich colors, patterns, and themes that showcase the artist's skill and creativity. piece is often seen as an intentional artistic creation. Situated between tags and pieces, Throwups are a form of graffiti between simple signatures and complex patterns. They may contain some pattern elements but are generally cleaner and faster. Wildstyle is a special form of piece graffiti, often featuring complex font designs and patterns. This style pursues artistry and uniqueness, often requiring artists to have great skills and creativity.

Graffiti

Article Analysis

Type Definition

Tag

Throw-up

Piece

Wildstyle

A writers name and signature



A quickly-executed illustration

consisting of an outline with or without
a thick layer of spray paint for fill-in



Short for "Masterpiece"

with detailed pieces and illustrations



A complicated and intricate form

letters have been transformed to the point that it is
illegible to those who are not familiar with this style



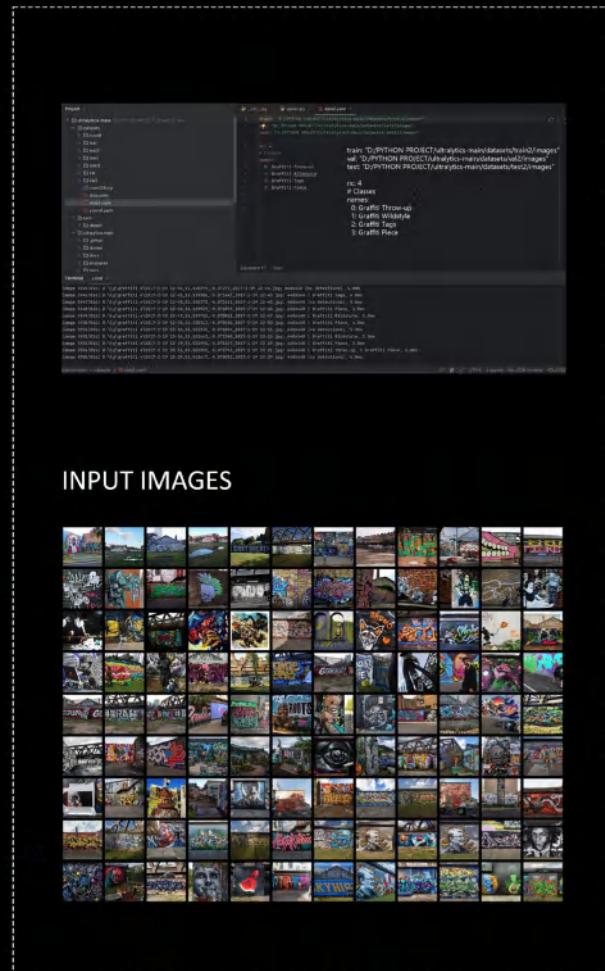
Graffiti Typology Analysis

YOLO training and detection

By using YOLO, a graffiti type data set was created to classify and label different types of graffiti pictures. After training, a graffiti type learning model

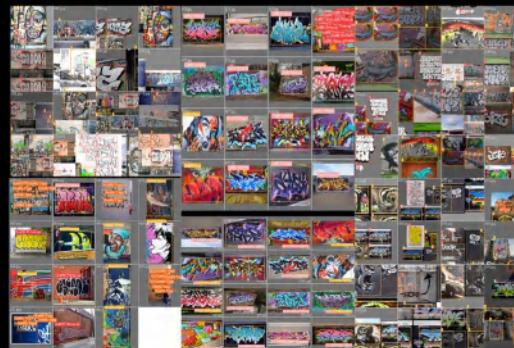
was finally established, which can recognize and distinguish various graffiti of different types.

CREATE DATASET



OUTPUT RESULT

TRAINNING IMAGE RESULT



#	filename	train	test	label	metadetect_label	metadetect_prob	metadetect_img	width	height	confidence	label	
1	1_0001.jpg	1	0	0	0	0.9993	0.9993	1_0001.jpg	1080	1920	0.9993	0
2	1_0011.jpg	0	1	0	0	0.9973	0.9973	1_0011.jpg	1080	1920	0.9973	0
3	1_0012.jpg	0	1	0	0	0.9979	0.9979	1_0012.jpg	1080	1920	0.9979	0
4	1_0013.jpg	0	1	0	0	0.9979	0.9979	1_0013.jpg	1080	1920	0.9979	0
5	1_0014.jpg	0	1	0	0	0.9978	0.9978	1_0014.jpg	1080	1920	0.9978	0
6	1_0015.jpg	0	1	0	0	0.9978	0.9978	1_0015.jpg	1080	1920	0.9978	0
7	1_0016.jpg	0	1	0	0	0.9978	0.9978	1_0016.jpg	1080	1920	0.9978	0
8	1_0017.jpg	0	1	0	0	0.9978	0.9978	1_0017.jpg	1080	1920	0.9978	0
9	1_0018.jpg	0	1	0	0	0.9978	0.9978	1_0018.jpg	1080	1920	0.9978	0
10	1_0019.jpg	0	1	0	0	0.9978	0.9978	1_0019.jpg	1080	1920	0.9978	0
11	1_0020.jpg	0	1	0	0	0.9978	0.9978	1_0020.jpg	1080	1920	0.9978	0
12	1_0021.jpg	0	1	0	0	0.9978	0.9978	1_0021.jpg	1080	1920	0.9978	0
13	1_0022.jpg	0	1	0	0	0.9978	0.9978	1_0022.jpg	1080	1920	0.9978	0
14	1_0023.jpg	0	1	0	0	0.9978	0.9978	1_0023.jpg	1080	1920	0.9978	0
15	1_0024.jpg	0	1	0	0	0.9978	0.9978	1_0024.jpg	1080	1920	0.9978	0
16	1_0025.jpg	0	1	0	0	0.9978	0.9978	1_0025.jpg	1080	1920	0.9978	0
17	1_0026.jpg	0	1	0	0	0.9978	0.9978	1_0026.jpg	1080	1920	0.9978	0
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21	1_0030.jpg	0	1	0	0	0.9978	0.9978	1_0030.jpg	1080	1920	0.9978	0
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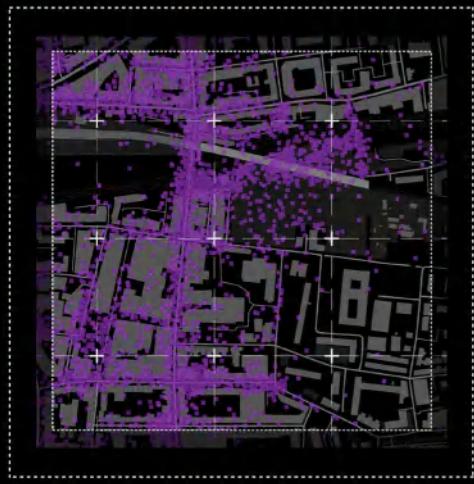
Graffiti Typology Analysis

YOLO training and detection

Using the trained graffiti type model, more than 10,000 graffiti photos with geographical coordinates previously obtained on Flickr were detected. These

detected graffiti photos were then re-annotated onto a map to understand how different types of graffiti are distributed in Shoreditch.

INPUT



Distribution of different graffiti types



“Tags”



“Throw-up”



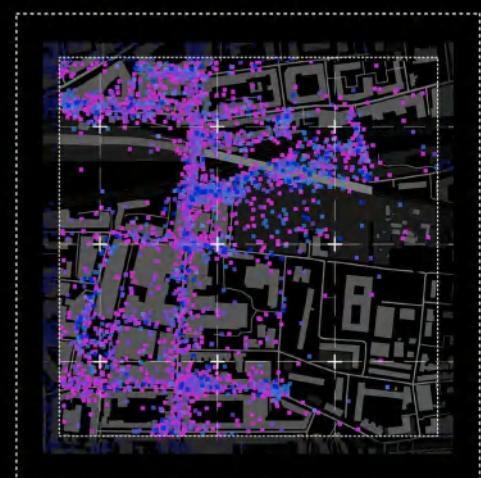
“Piece”



“Wildstyle”



OUTPUT



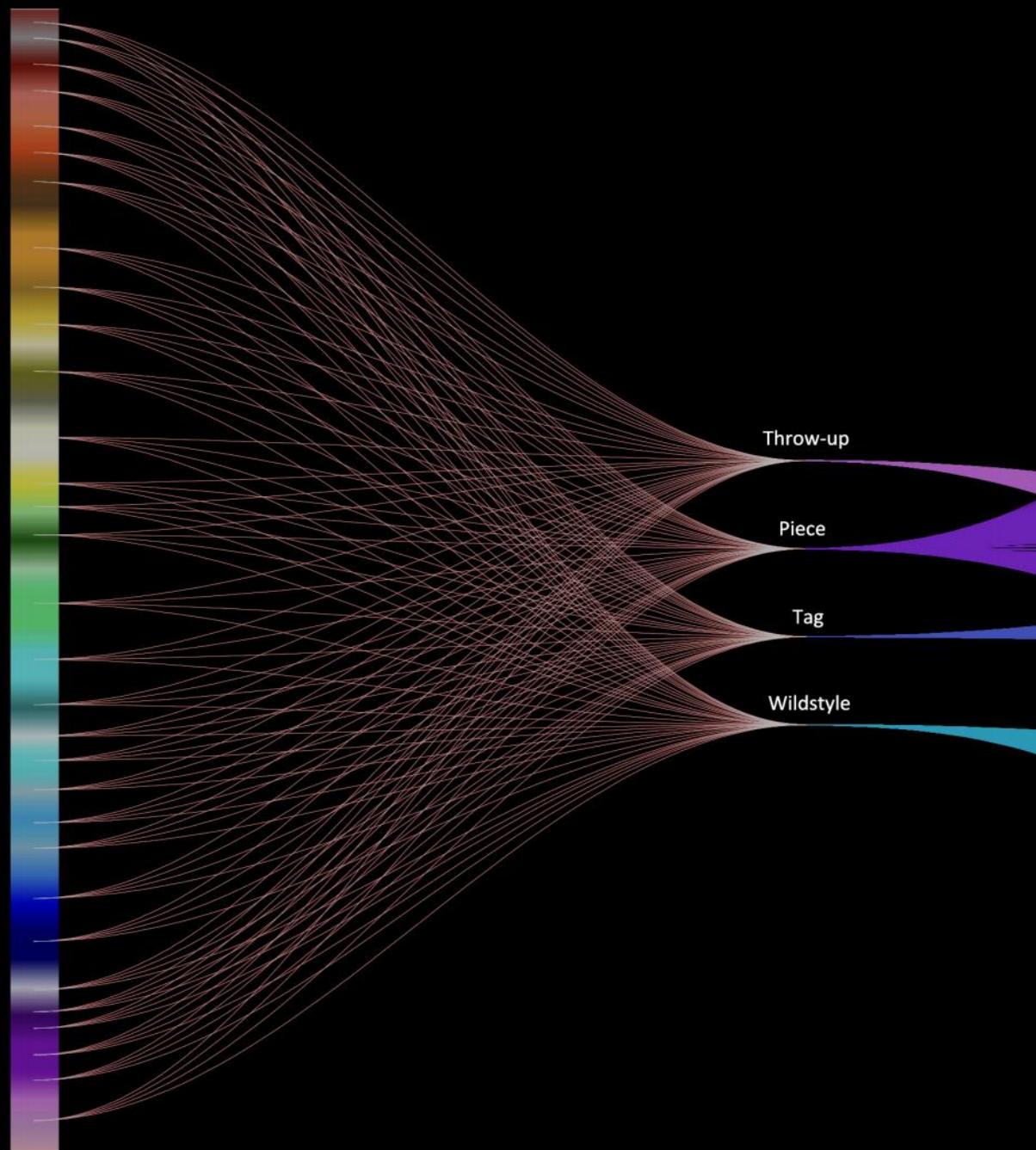
Distribution of flickr photos in Shoreditch centre area

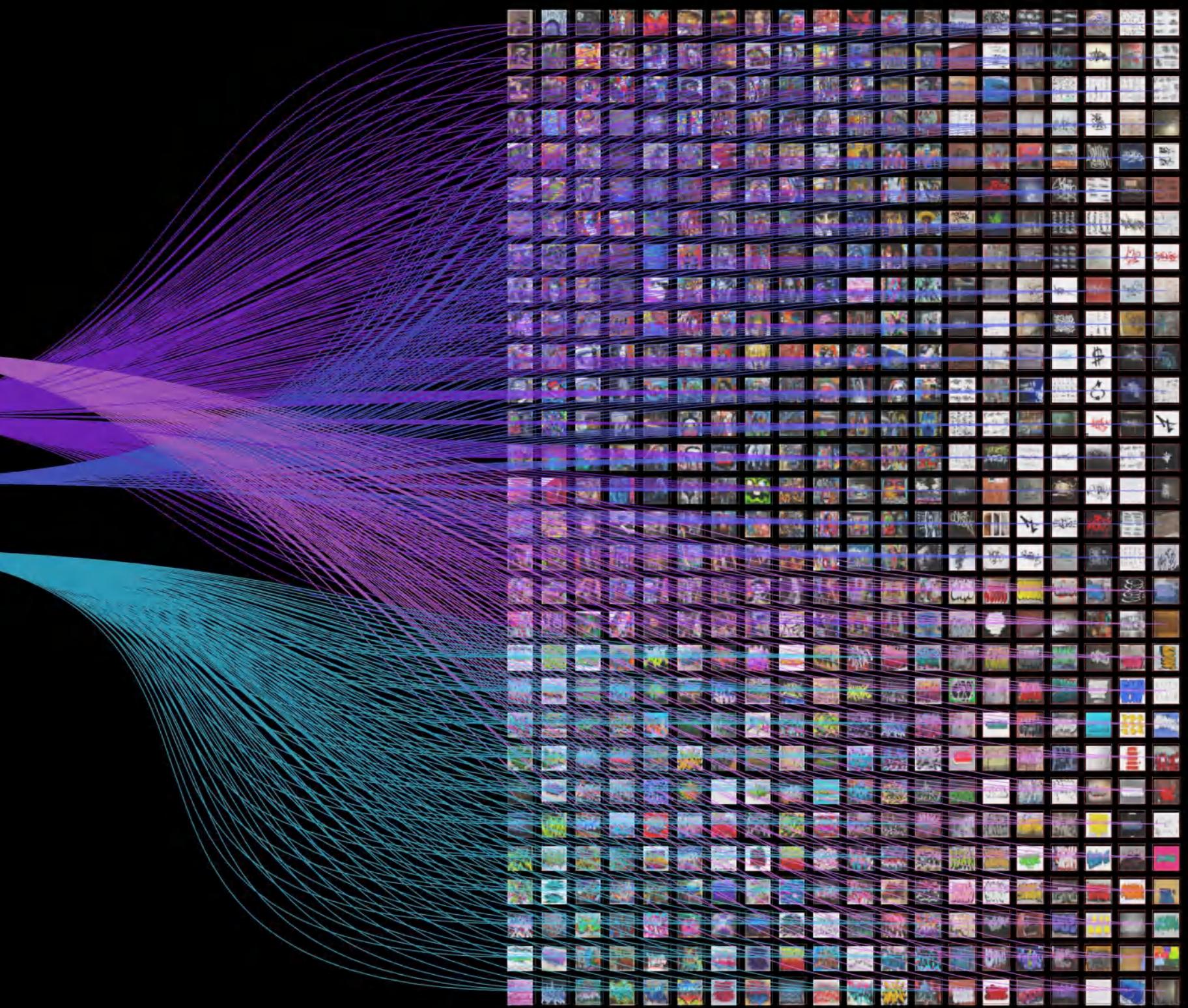


Graffiti Color Analysis

Graffiti color identification

Using the trained graffiti type model, more than 10,000 graffiti photos with geographical coordinates previously obtained on Flickr were detected. These detected graffiti photos were then re-annotated onto a map to understand how different types of graffiti are distributed in Shoreditch.





Graffiti Feature Analysis

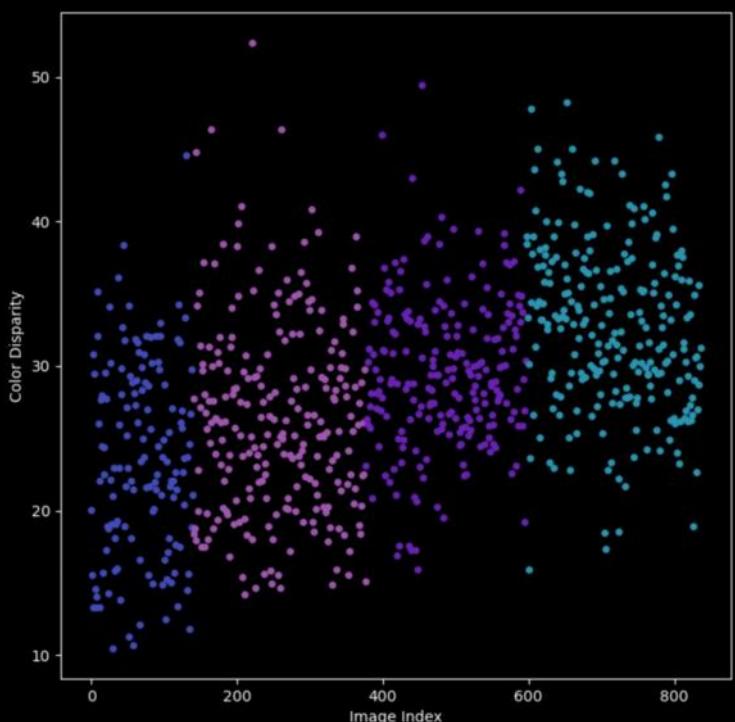
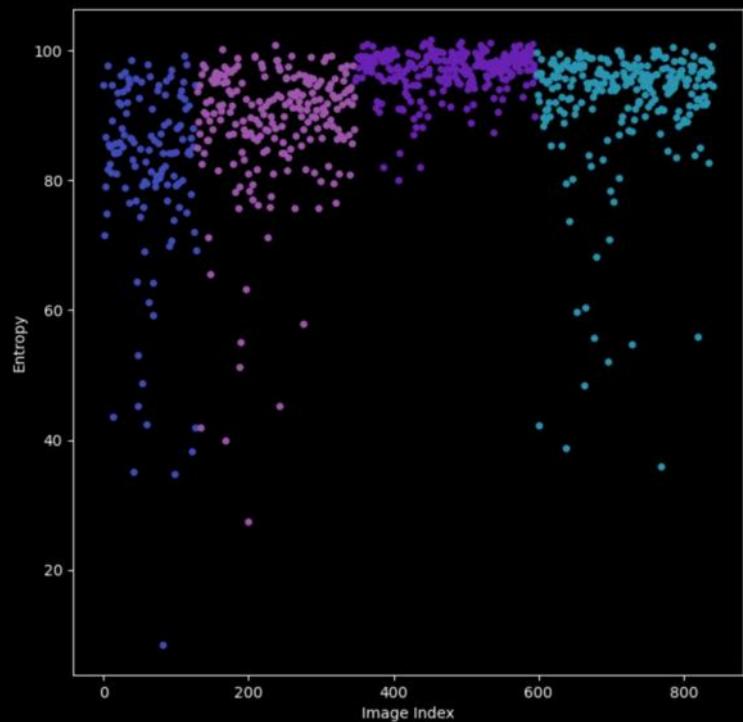
Graffiti typology identification

Color Entropy Scatter Plot

Color entropy is commonly used to describe the distribution of colors in an image. A higher color entropy indicates a more diverse and varied color distribution in the image, whereas a lower color entropy suggests that the colors are more uniform or concentrated.

Color Disparity Scatter Plot

Color Disparity refers to the difference or discrepancy in color between different regions or pixels within an image. Typically, color disparity can be quantified and described by comparing pixel color values, color distributions, or color features.



● TAGS ● THROWUP

Stereo Images Scatter Plot

"Stereo" refers to stereoscopic vision or stereoscopic perception. Stereo in images can produce depth perception and stereoscopic effects. This sense of three-dimensionality can give images a sense of three-dimensionality and depth in a three-dimensional space.

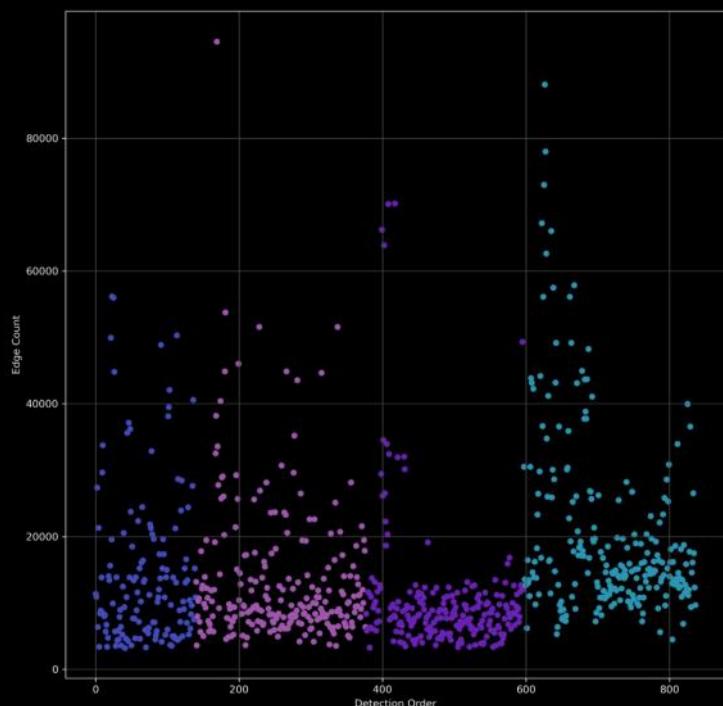
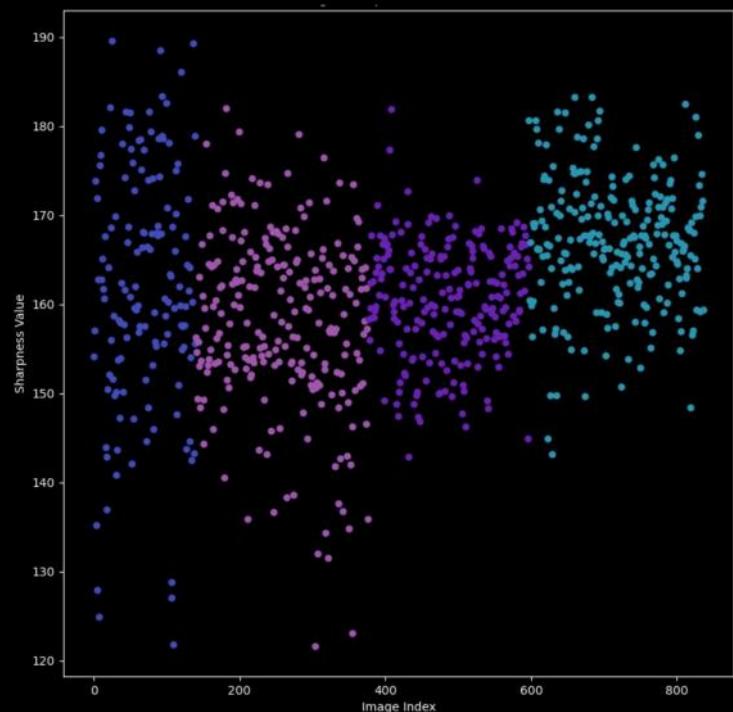


Image Sharpness Scatter Plot

Sharpness is the clarity and contrast of the edges of objects in an image. An image with high sharpness has clear, well-defined edges with significant contrast differences between the edges.





Chapter 03

Public Participation

Sensor Experiment
GSR Data Visualization
Sight Analysis
Speed Analysis
Space Analysis
Attractiveness Analysis

Sensor Experiment

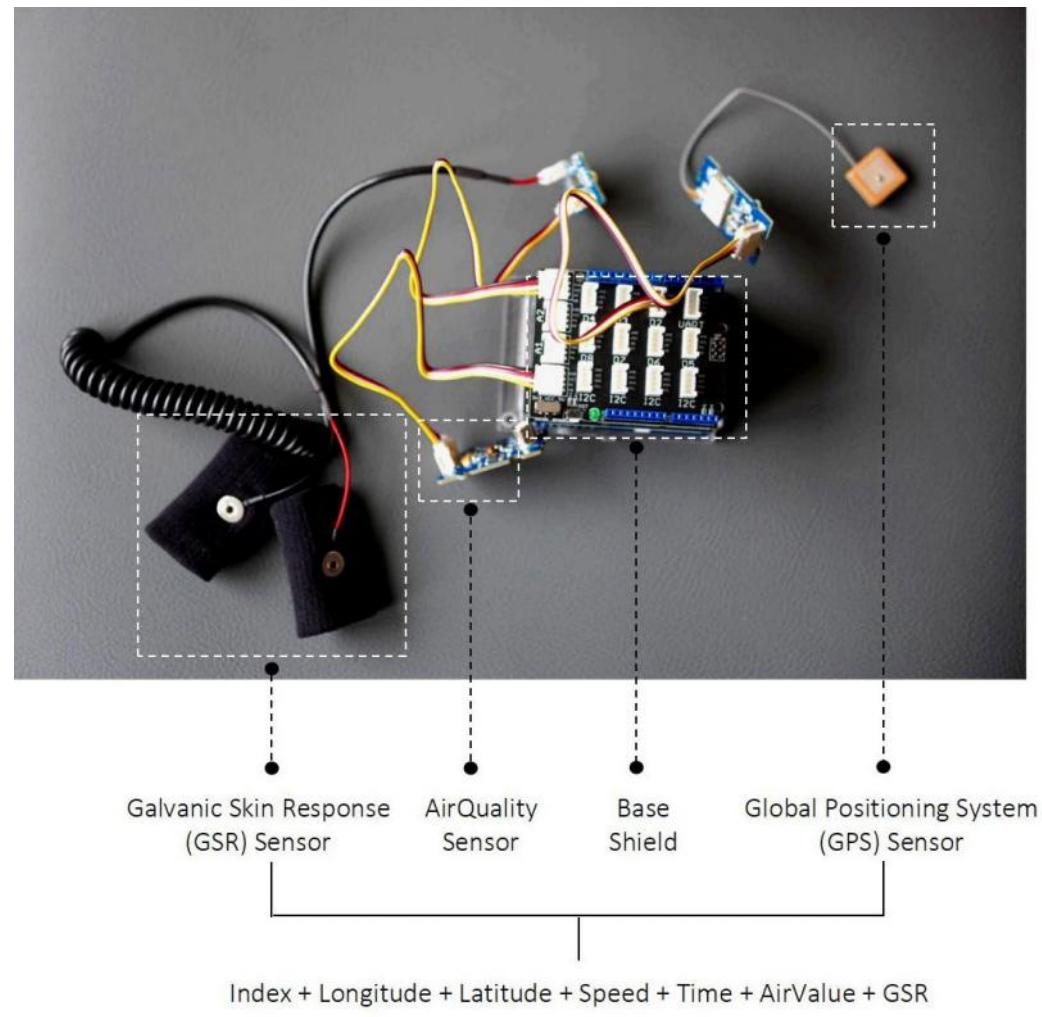
Arduino module and route selection

In order to further analyze people's feelings about the graffiti in Shoreditch, we hope to detect people's emotions. We use arduino sensor to extract biological information. Through the sensor, we can get the corresponding data of the tester's emotional information and geographical location. We choose GSR as the biological arousal signal, and its value

to change to represent the emotional change of the tester. GSR(Galvanic Skin Response) is the electrodes on the skin surface measure the change in electrical resistance caused by fluctuations in sweat gland activity.

In order to make the data more convincing, we selected two different volunteers, audiences and

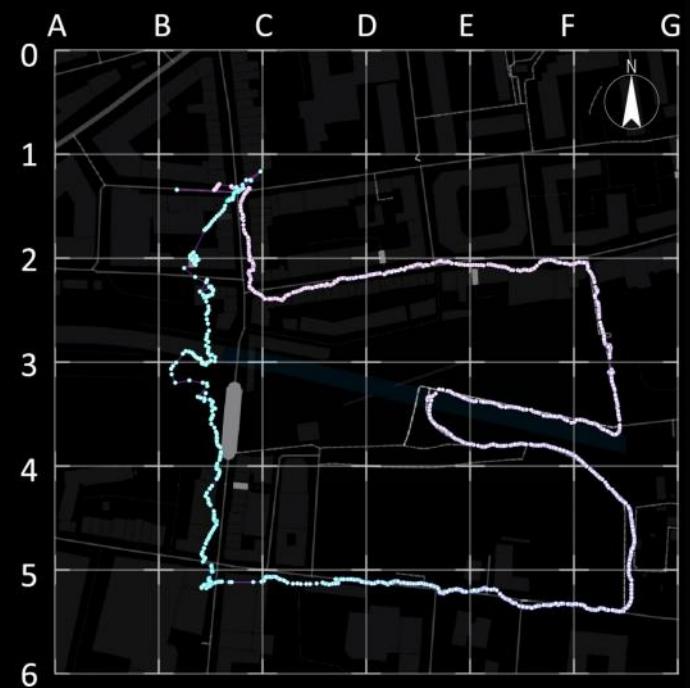
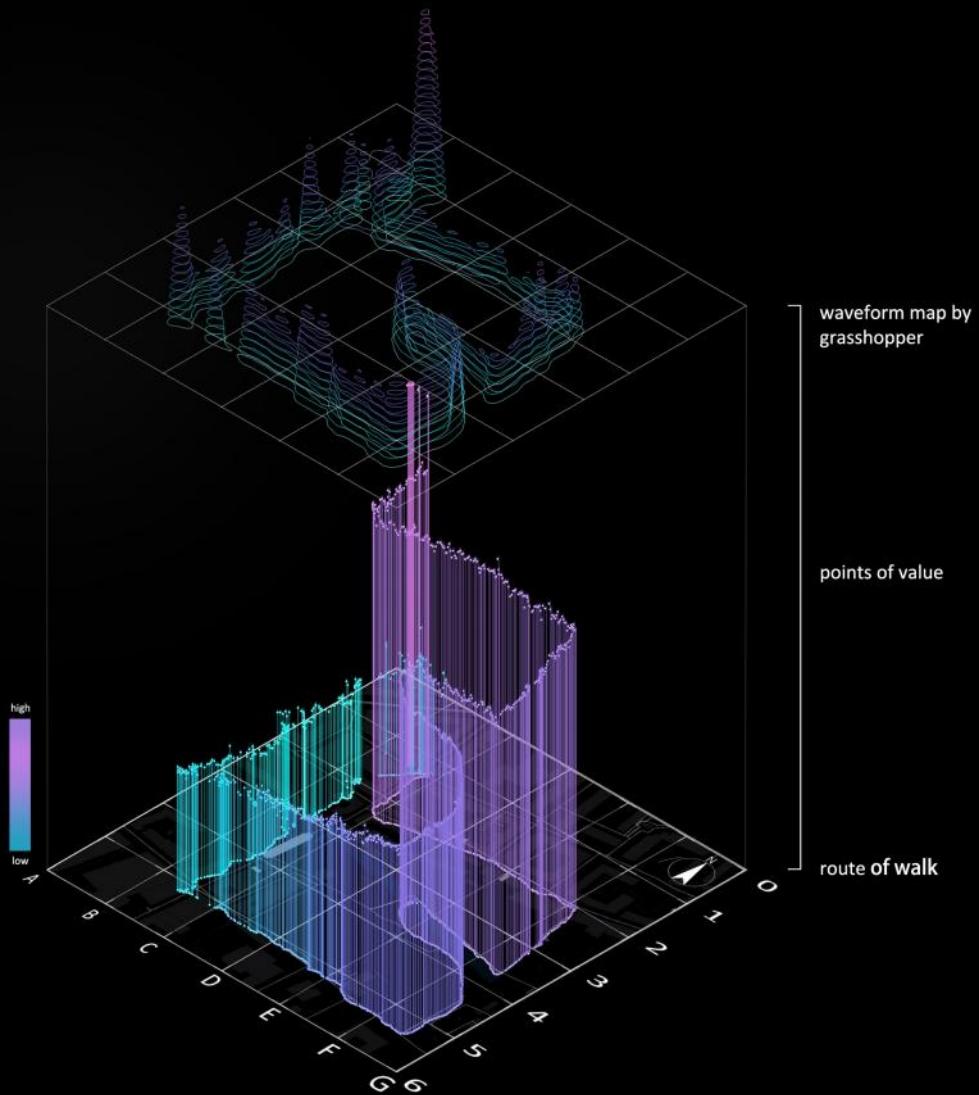
artists for emotional detection. For the audience volunteers, we planned a defined route from Brick Ln, where graffiti is most prevalent, through the legal wall area and back to the starting point, ensuring that they would see the richest graffiti in Shoreditch.



GSR Data Visualization

Audience

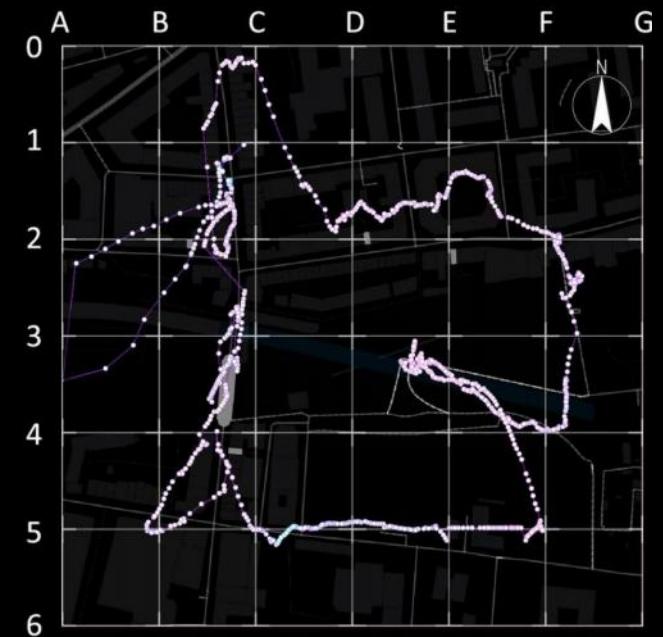
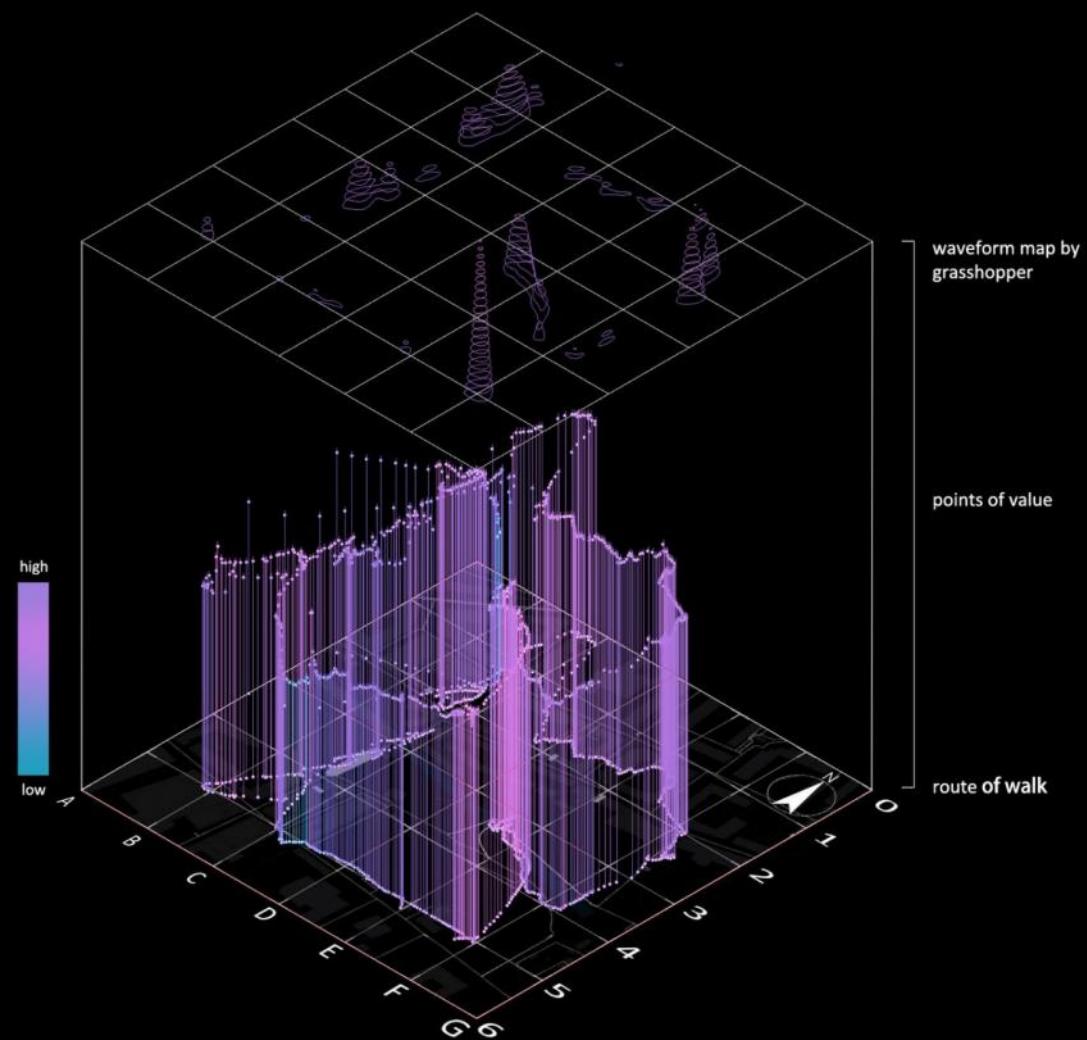
Audience sample 01



GSR Data Visualization

Audience

Audience sample 02



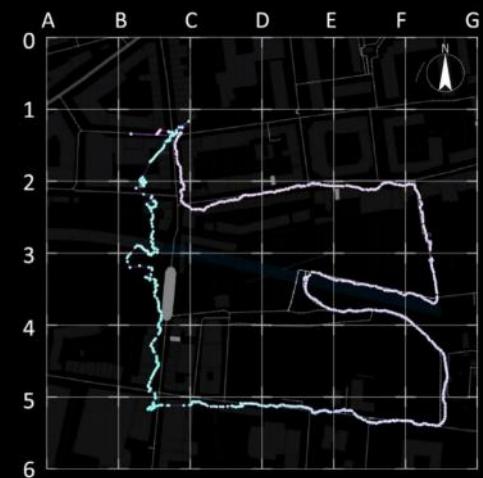
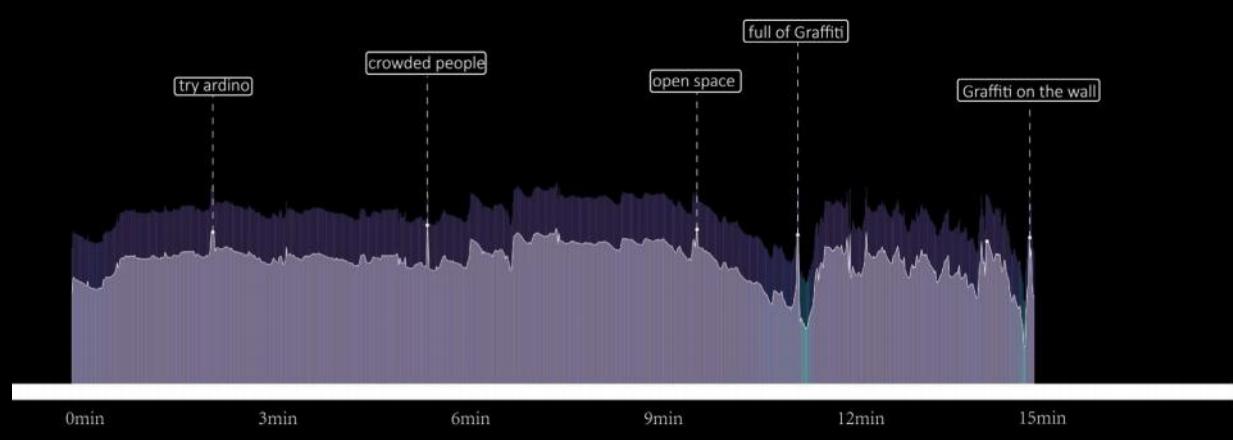
GSR Data Visualization

Audience

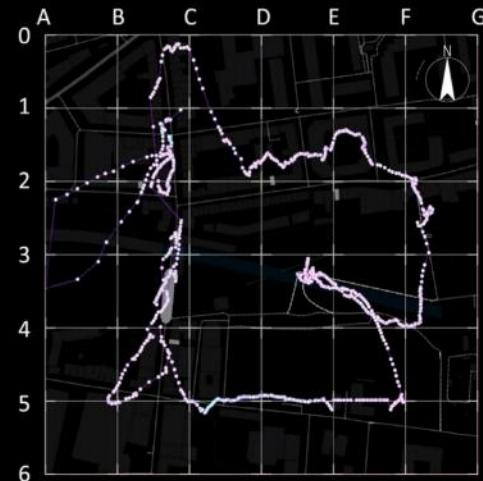
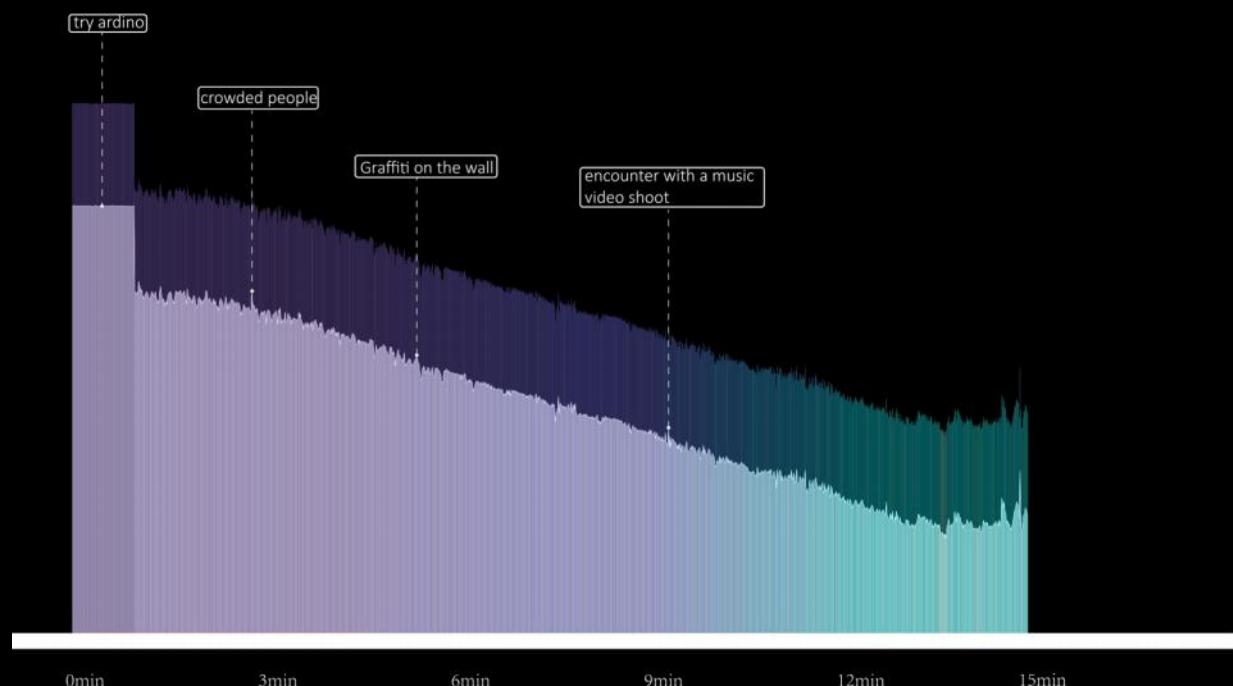
The visualisation of GSR contours and GSR points shows the data we got from arduino sampling. After showing the visualize model to the tester, we convey a small interview of what they have seen and their feelings, like one tester said try arduino for the first

time is quite exciting and also encounter with a music video shot left deep impression, crowded people also influence the emotion, which make the tester a litter bit unrest. And the colorful graffiti on the walls could also influence the GSR value.

Audience sample 01

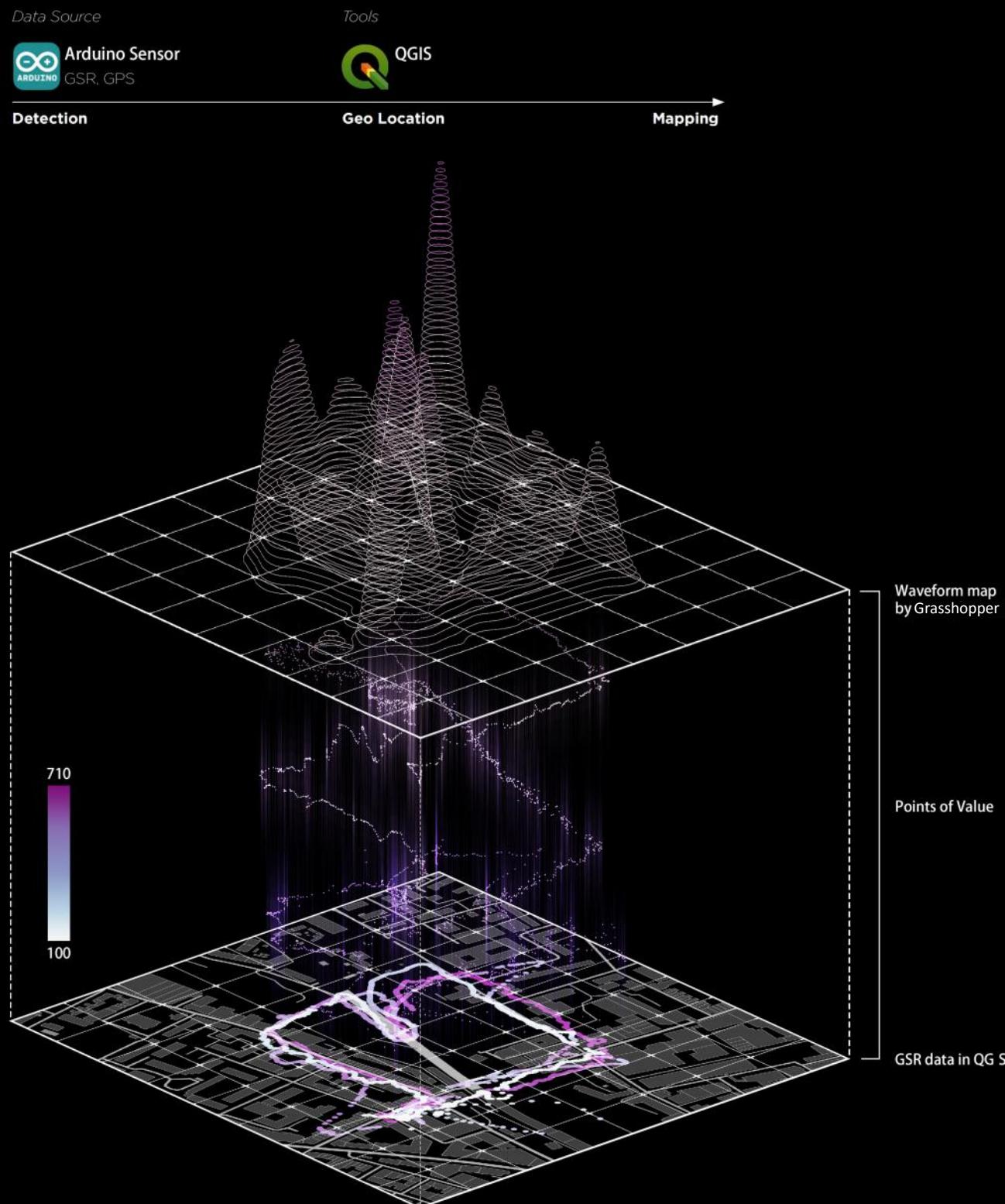


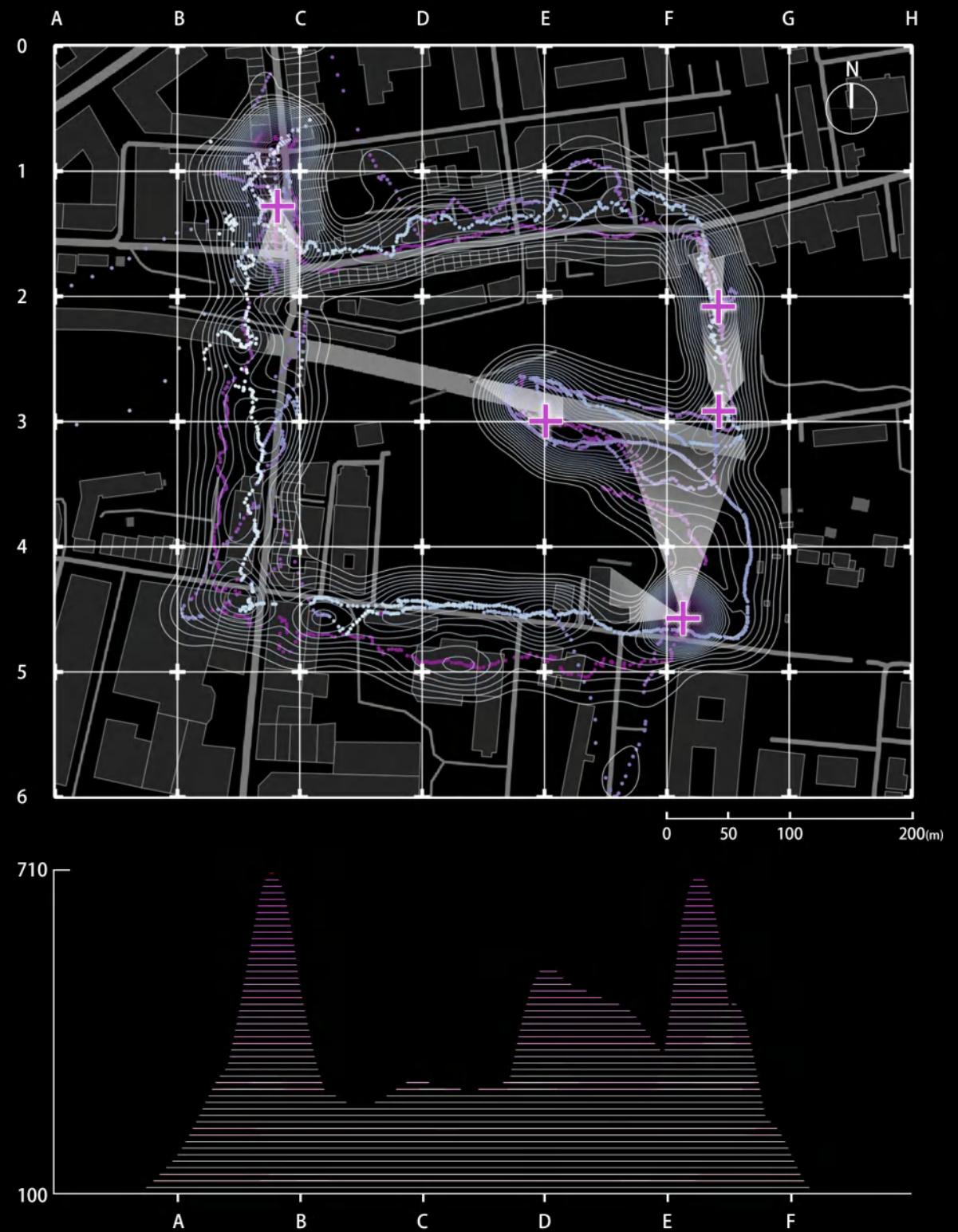
Audience sample 02



GSR Data Visualization

Audience





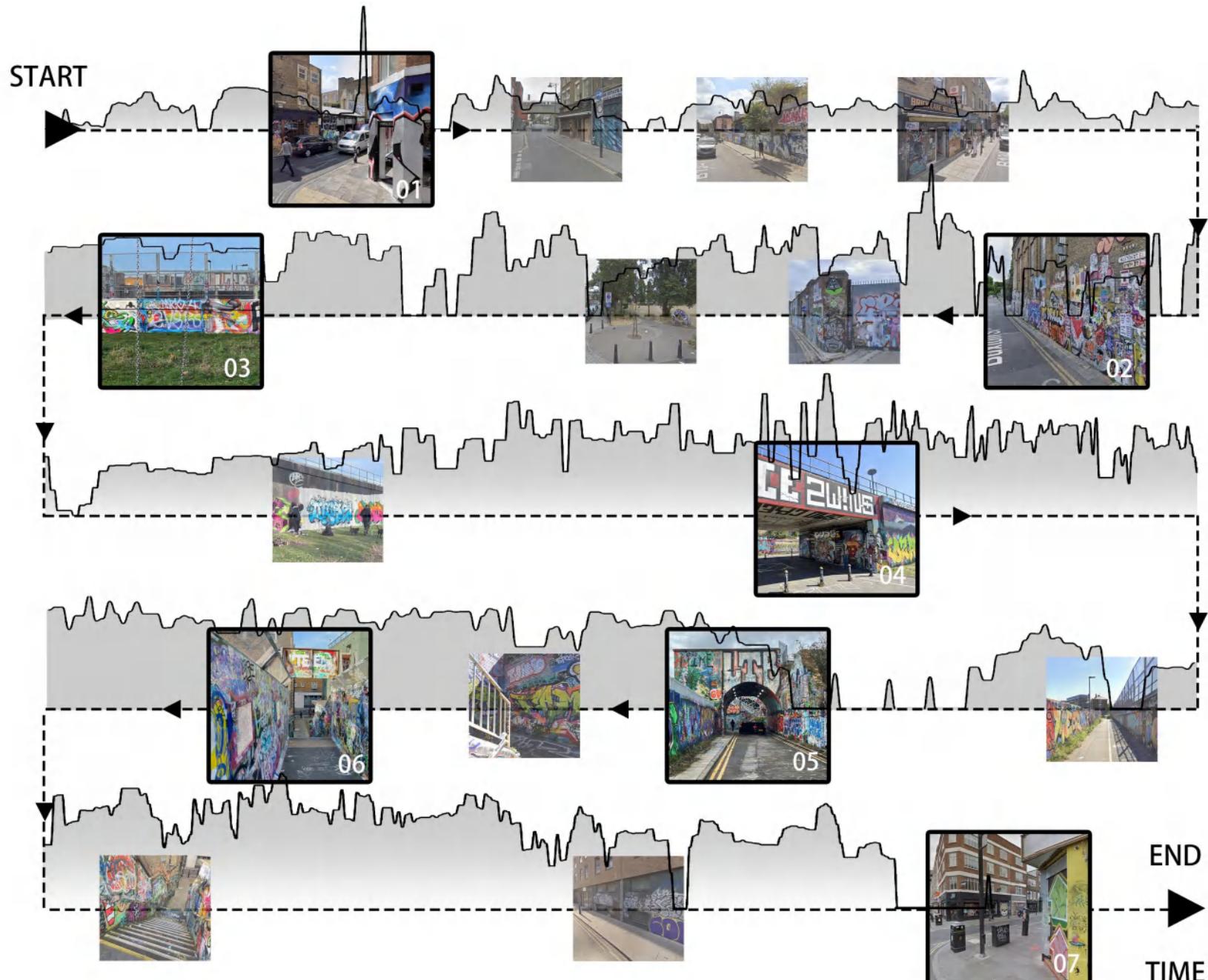
After aggregating the GSR data from the audiences, five spaces with high GSR values were found in the Shoreditch area. This means that these locations may have some kind of impact, triggering an emotional response in people. By visualizing this data and combining it with the field, these locations can take on special visual characteristics and emotional connotations.

Sight Analysis

Tourists sight line analysis

In order to investigate the effect of travelling speed on mood changes, we combined speed with the points at which the tester's GSR data changed, and at most of the points at which mood changed the

tester made stops, and it was seen that there was a correlation between the time of observation and changes in mood.



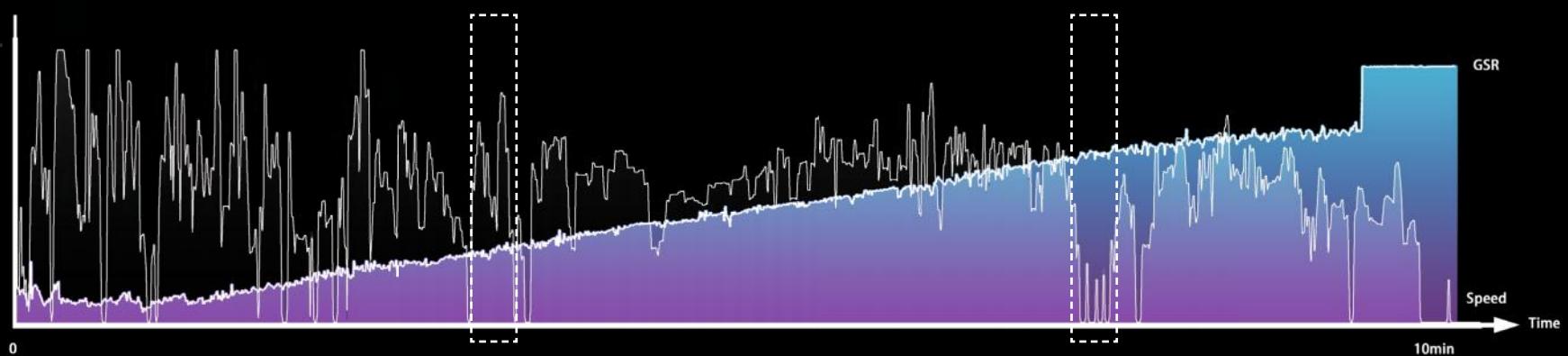
Speed analysis

Relationship between GSR and speed

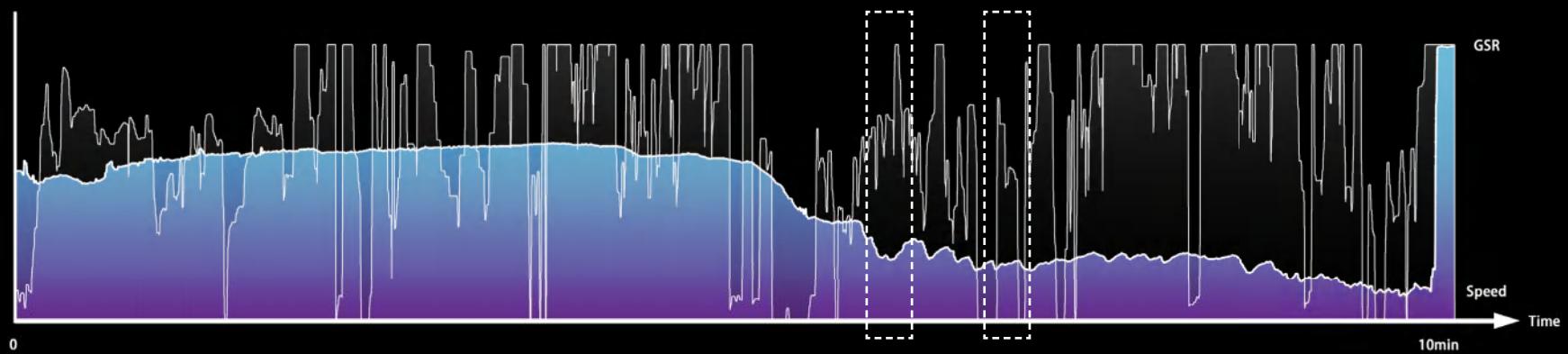
In order to further investigate the effect of speed on affective change, speed and GSR data from two visitor samples were visualised to explore

the relationship between the two data. A trend of increasing GSR values with decreasing speed can be seen at some specific times.

Test 01



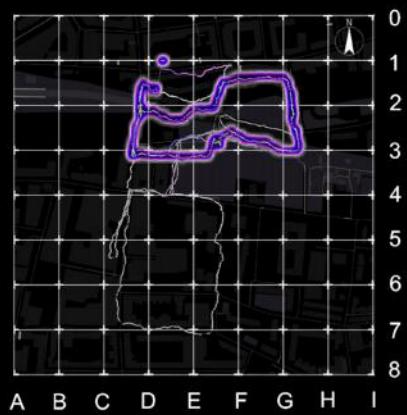
Test 02



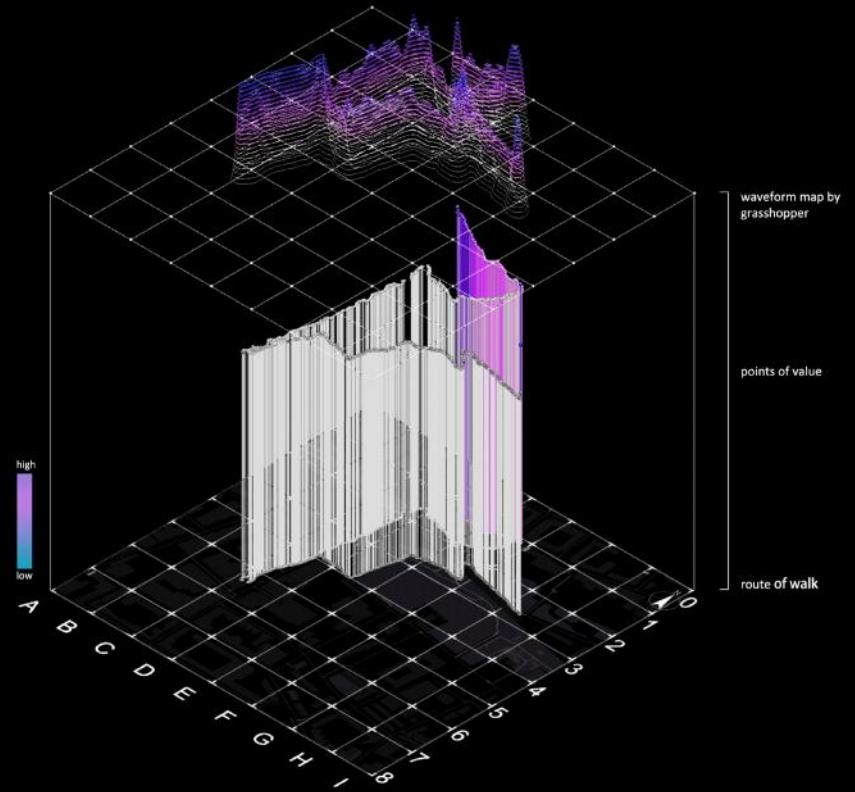
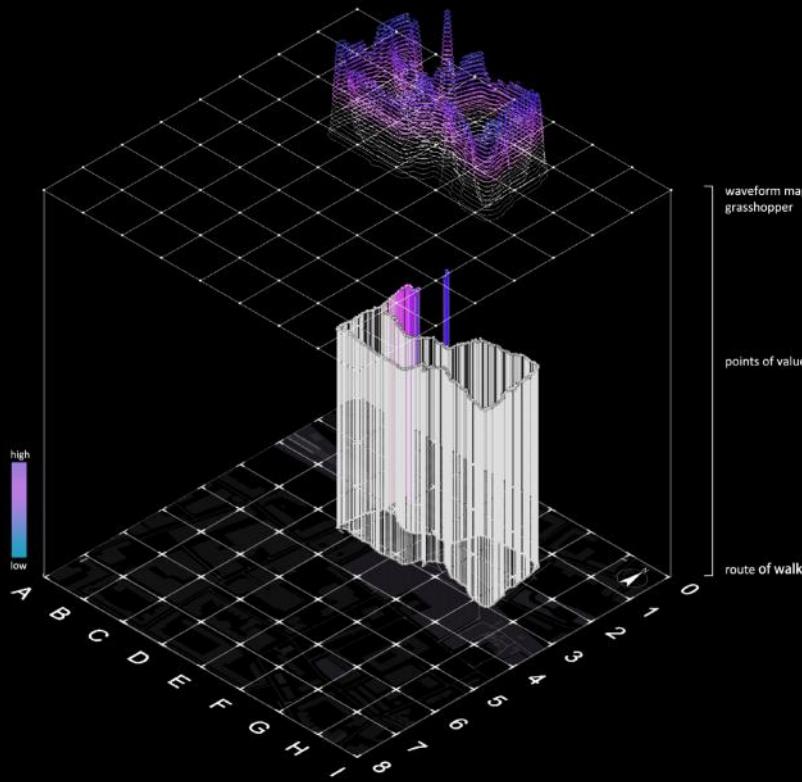
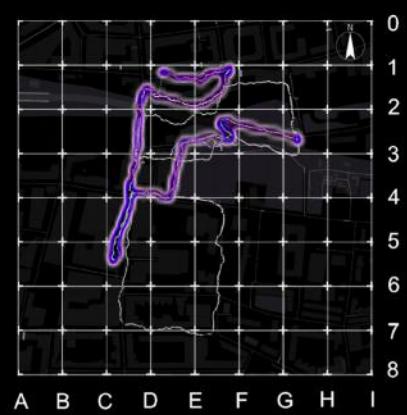
GSR Data Visualization

Artists

Artist sample 01

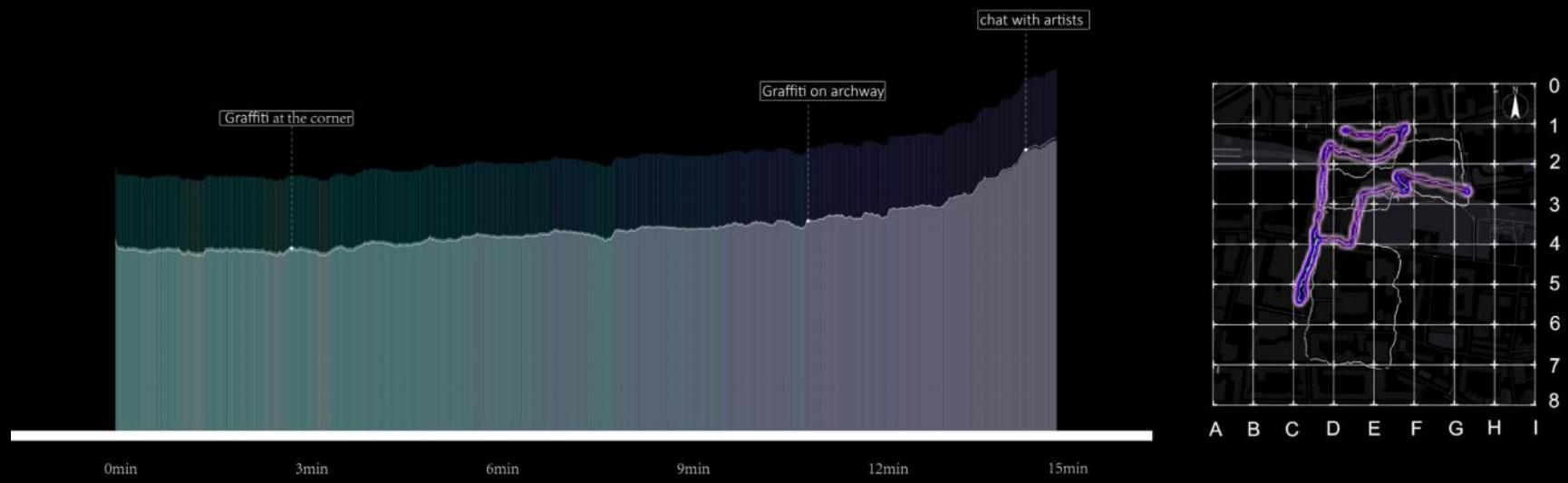


Artist sample 02

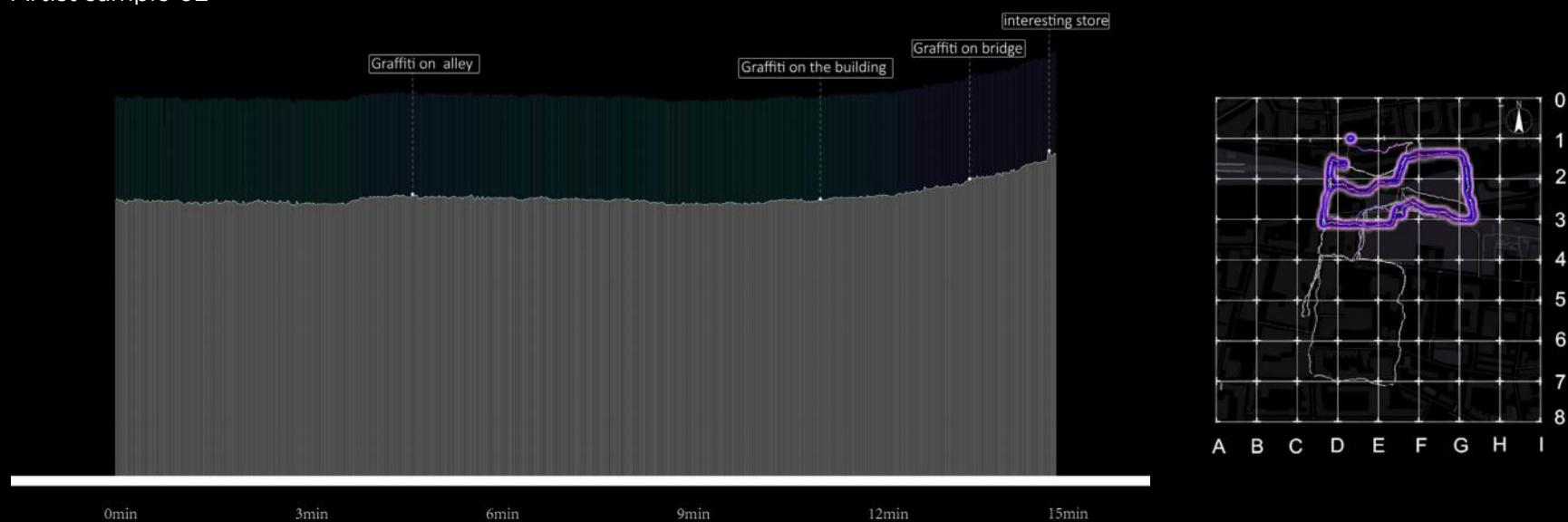


03 Public Participation | UBIQUITOUS URBAN EXPRESSION

Artist sample 01



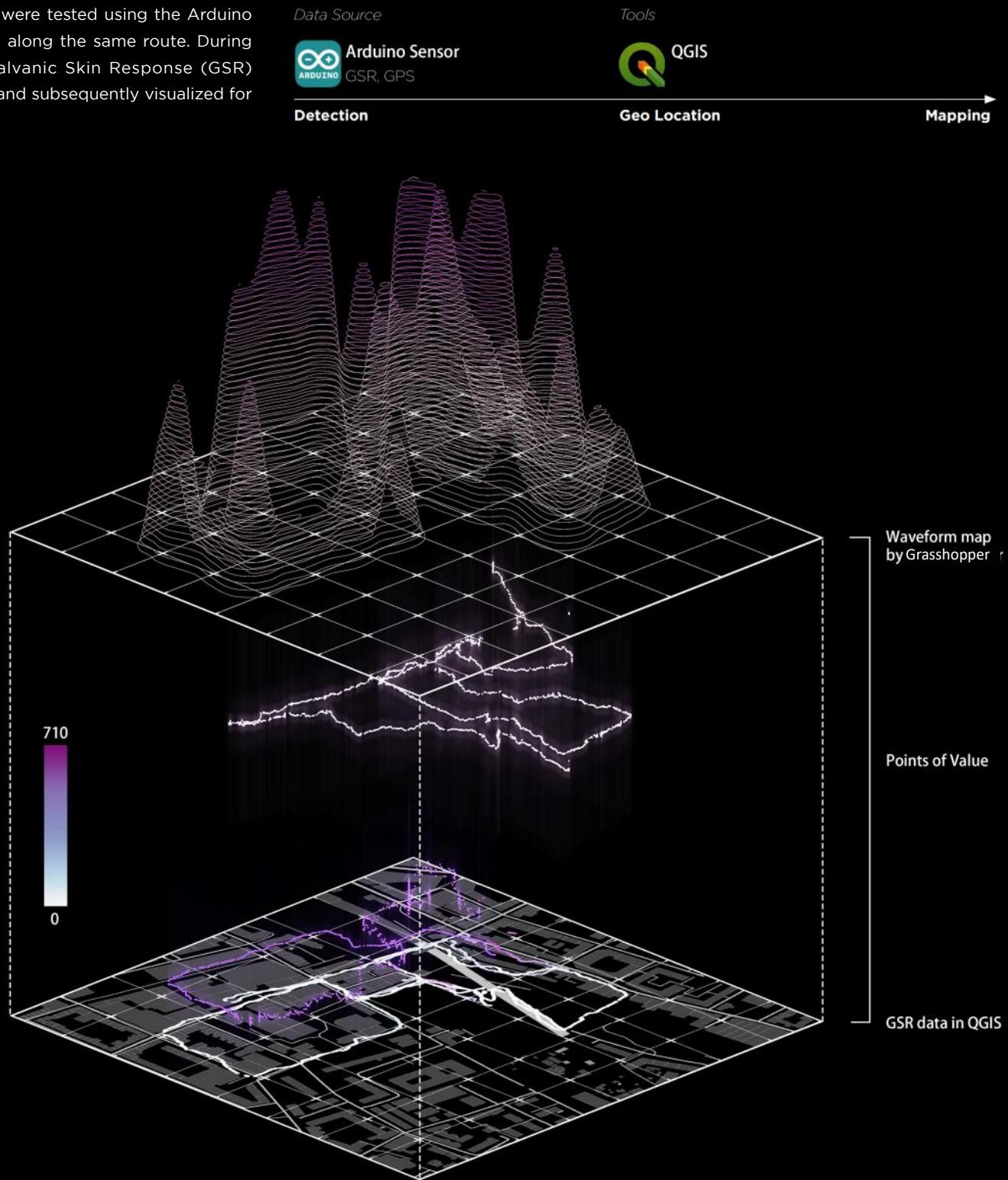
Artist sample 02

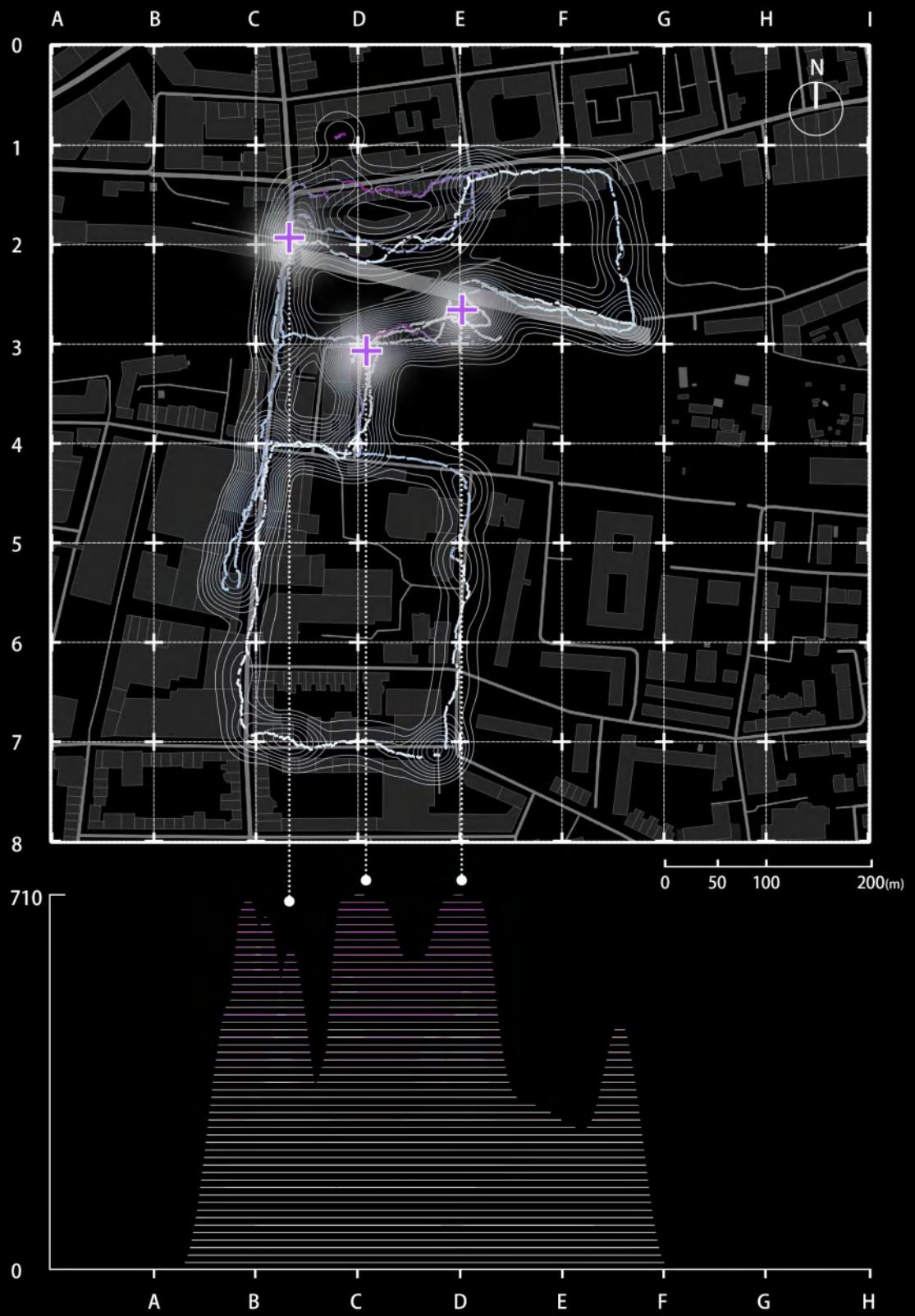


GSR Data Visualization

Artists

Three different artists were tested using the Arduino device as they walked along the same route. During this process, their Galvanic Skin Response (GSR) values were collected and subsequently visualized for analysis.

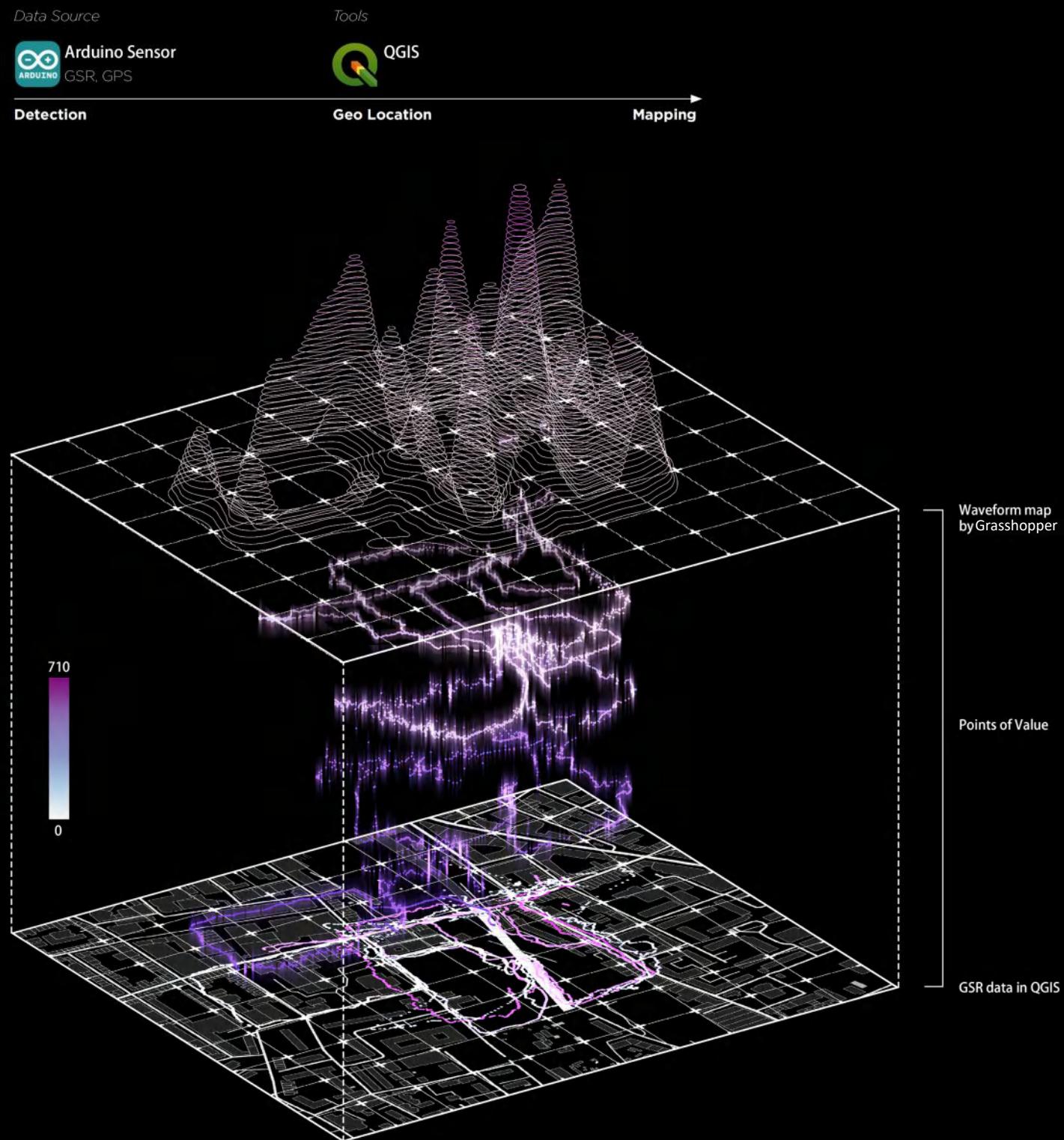


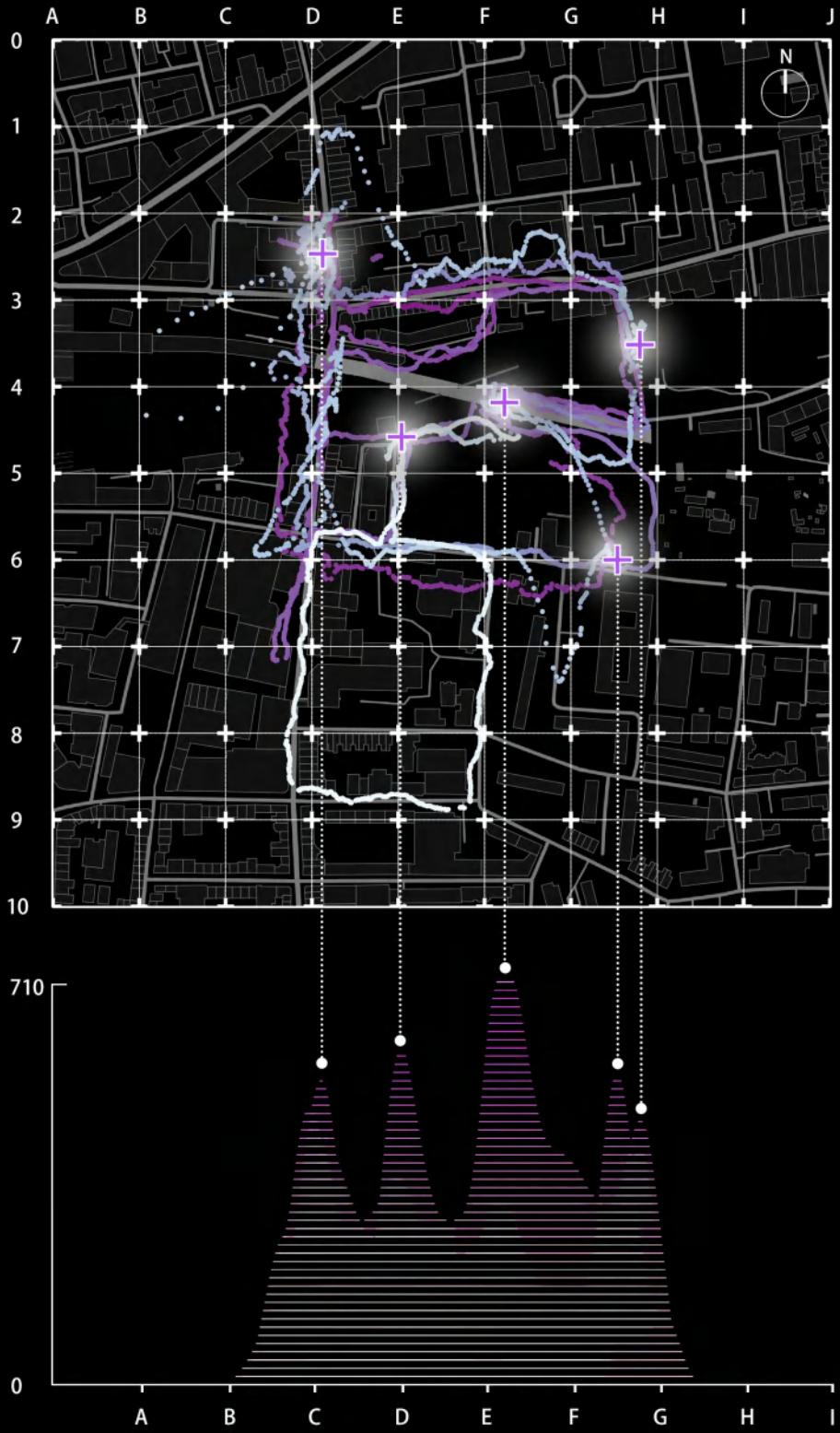


The GSR test is designed to compare and contrast artists' physiological responses when walking the same path, providing insight into how their personal experiences impact their emotional or cognitive responses. After the interview, we learned that these three artists showed higher GSR values after walking the same path. In addition to the graffiti on the route that attracts them, they also show greater interest in these locations because those places provide good spaces and can display graffiti works well.

GSR Data Visualization

All participants





The research revealed five spaces with high GSR values in Shoreditch. This shows that these locations not only have an important emotional impact on viewers, triggering strong emotional responses, but also attract the attention of graffiti artists. Through site surveys and interviews, it was discovered that these places indeed have a large number of graffiti works and display fascinating visual attraction. However, in addition to the visual attractiveness characteristics, the attractiveness of graffiti works may also be related to other urban environmental factors.

Space Analysis

Space identification----- 3D scanning models

Archway



Stairs



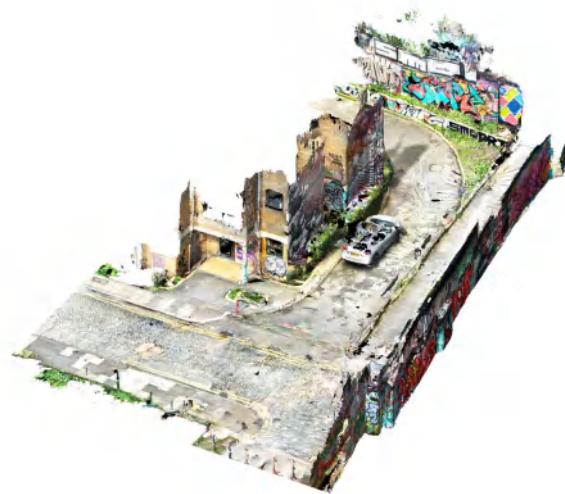
Bridge



Open Space



Crossroad



Alley

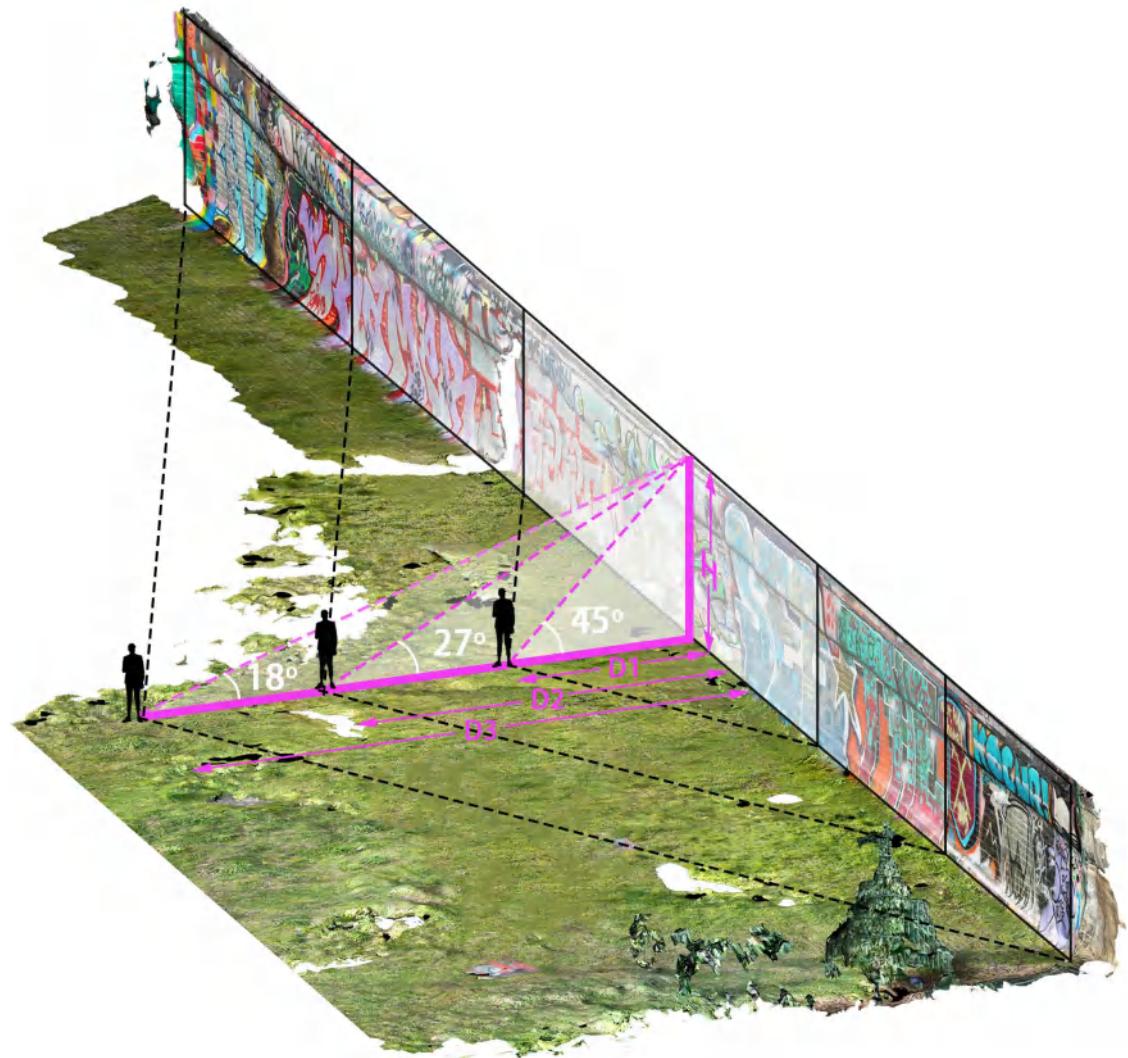


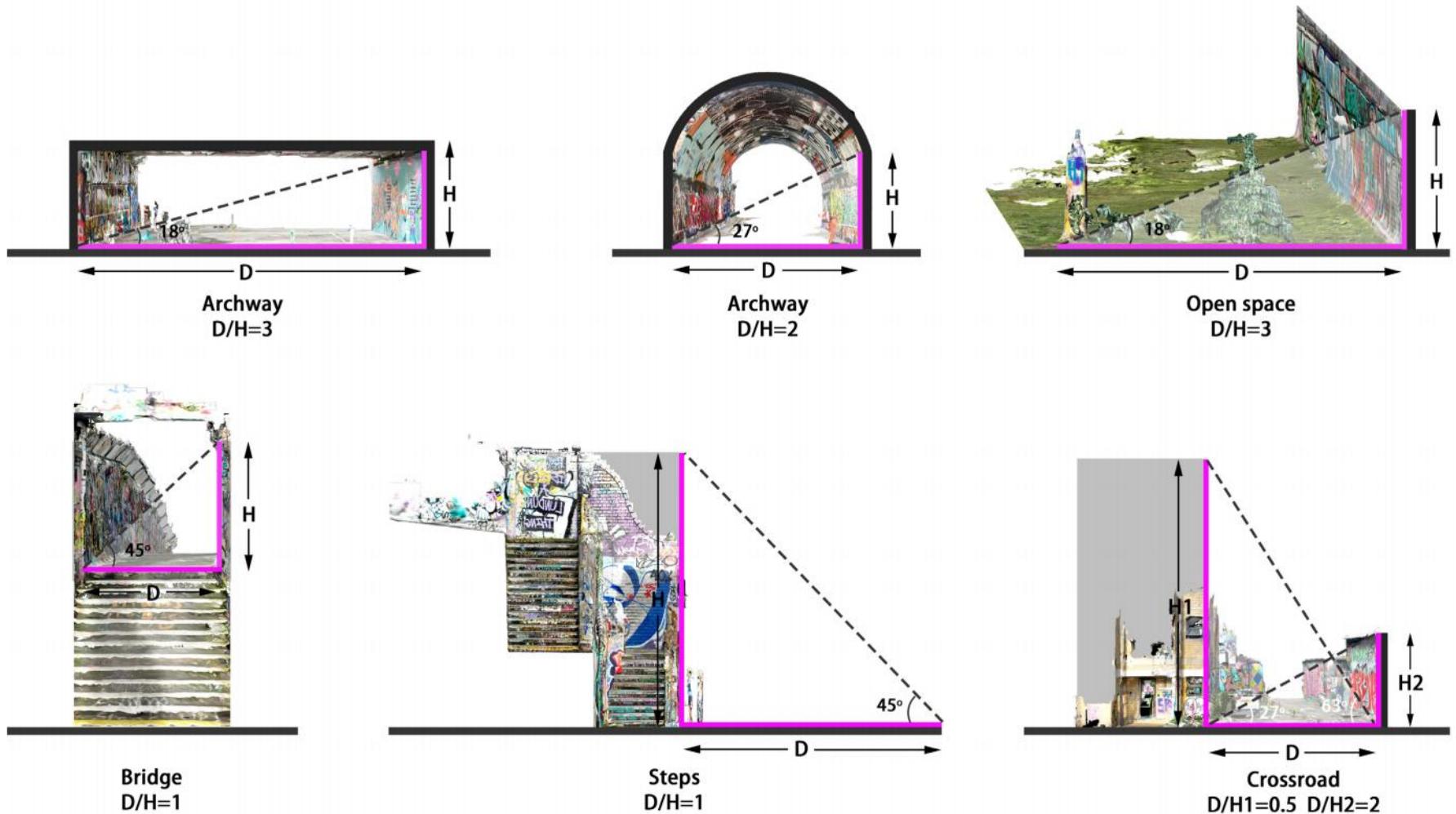
Space Analysis

Diameter/Height of street

Based on the research of articles, we use the concept Ratio of street diameter to height, to measure these spaces. There is a connection between this ratio and human emotion. Because when the ratio is different, the field of vision people can see is also different, when the ratio is one, it's the best place to see the details of the building, when the ratio is two, it's the place not only can see the details but also to enjoy the whole area, when the ratio is three, it's the best place to see the whole place. So the ratio between one and three is the optimum space.

This appropriate ratio is met in archway, open space, bridge, steps and crossroad space, which are therefore suitable for people to view graffiti.



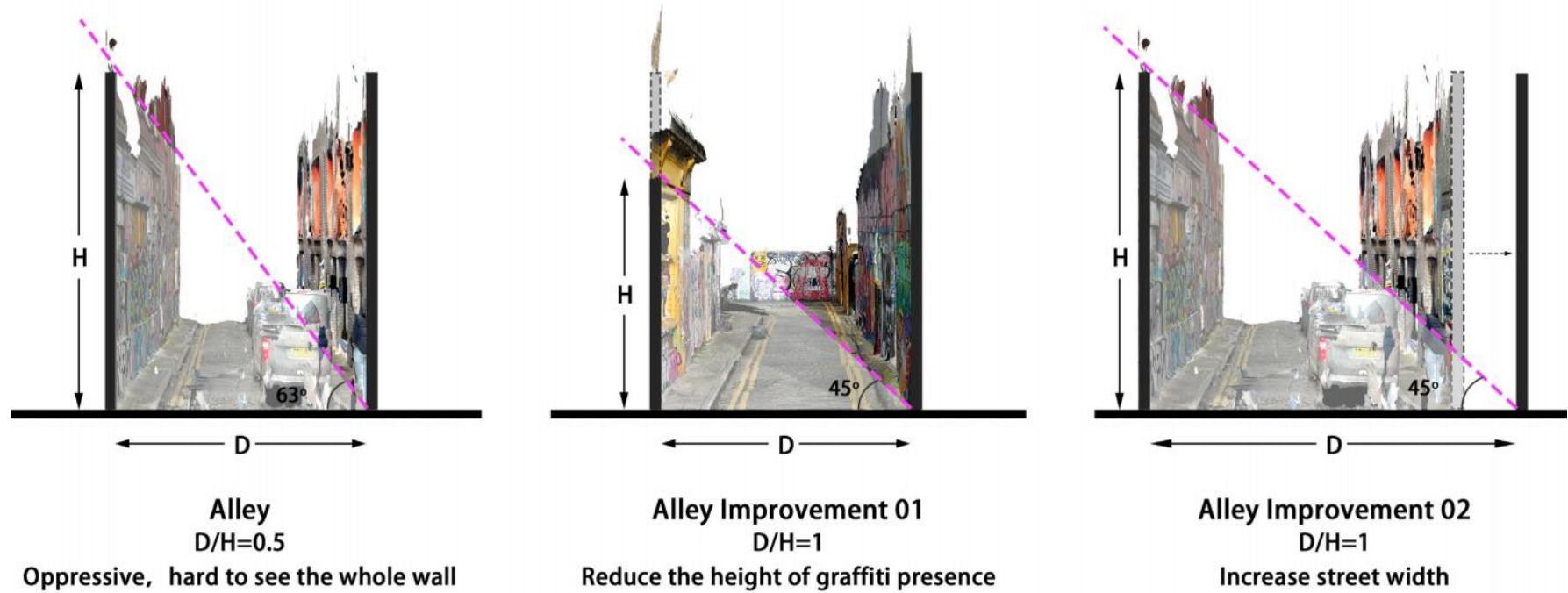


Space Analysis

Diameter/Height of street

However in alley area, the space is so oppressive, which means the ratio at there is smaller than 1, and it's hard for people to see the whole wall. To solve this

problem, we can reduce the height of the graffiti on the wall, or increase the width of the street.



Attractiveness Analysis

Type of graffiti ----- Archway

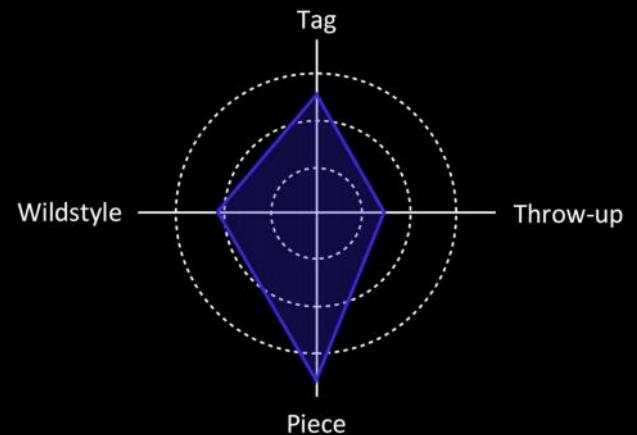
3D Realistic Scanning
Archway



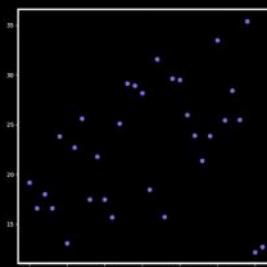
Photo selection
Archway



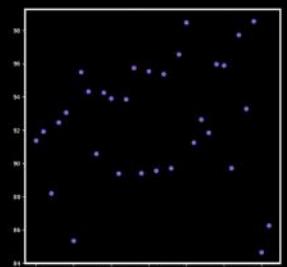
Typology and characteristics of graffiti



Color Disparity Scatter Plot



Color Entropy Scatter Plot



High color richness

Stereo images Scatter Plot

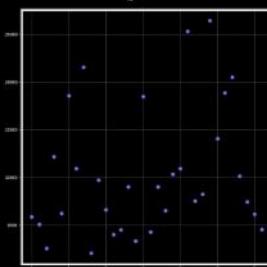
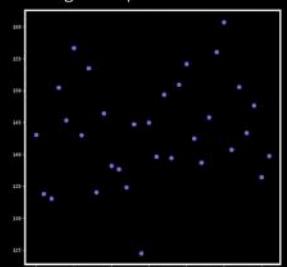


Image Sharpness Scatter Plot



High three-dimentional sense

Type of graffiti ----- Open Space

3D Realistic Scanning
Open space

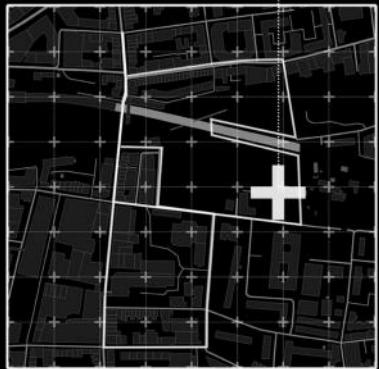
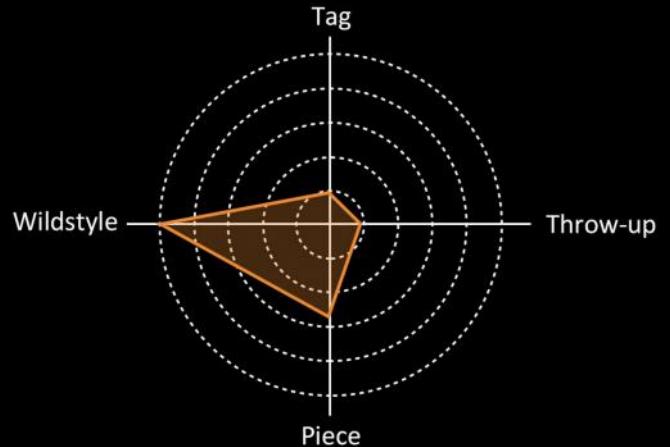


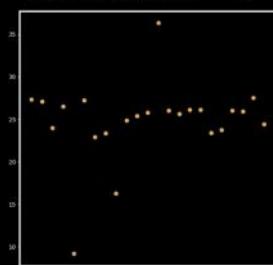
Photo selection
Open space



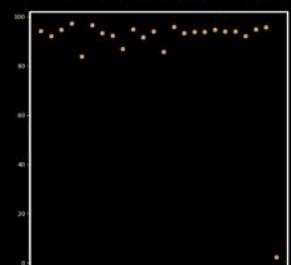
Typology and characteristics of graffiti



Color Disparity Scatter Plot



Color Entropy Scatter Plot



High color richness

Stereo images Scatter Plot

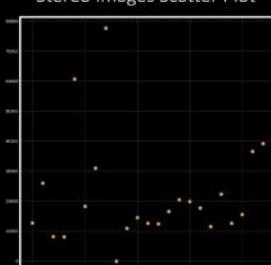
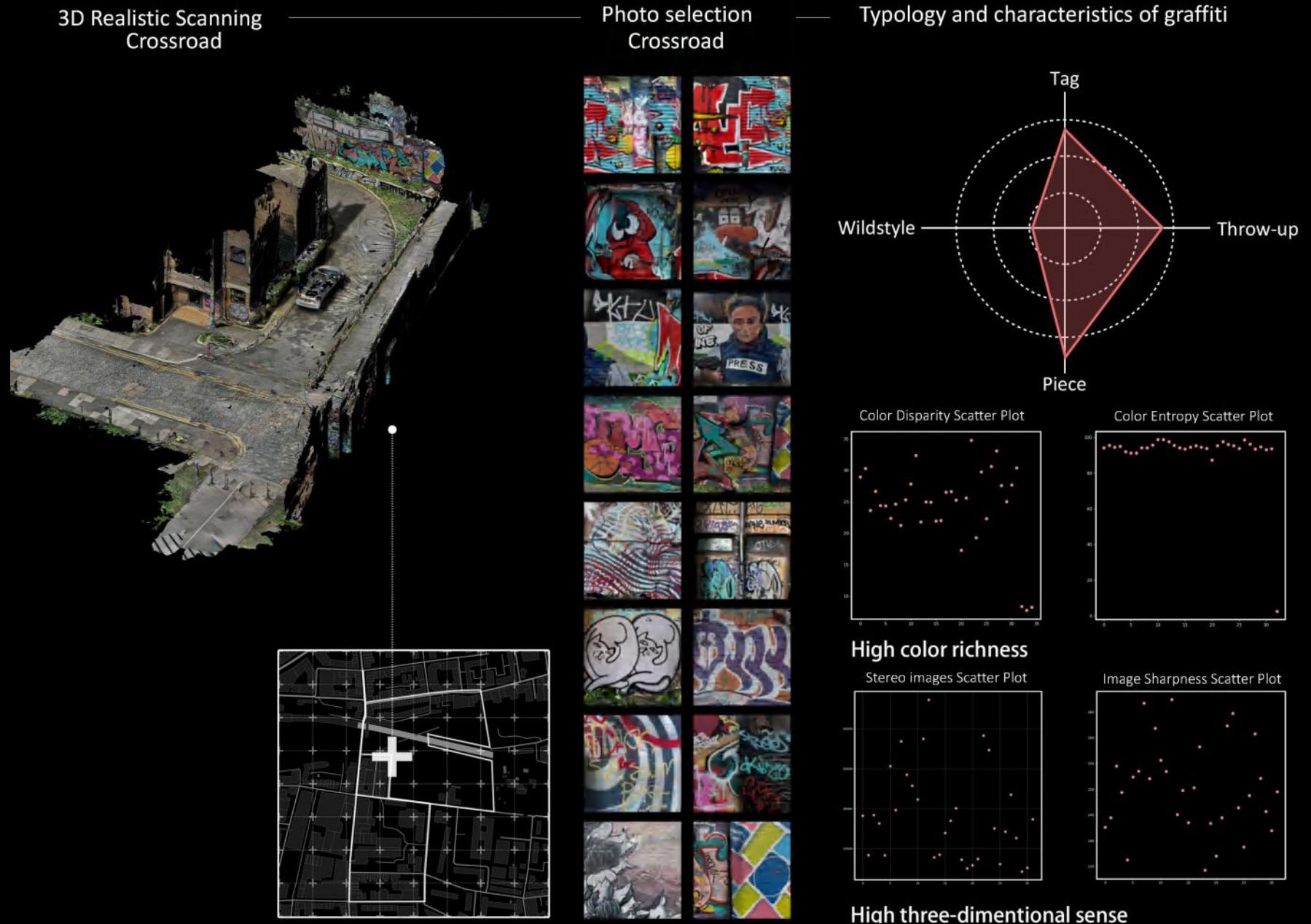


Image Sharpness Scatter Plot



High three-dimentional sense

Type of graffiti ----- Crossroad



03 Public Participation | UBIQUITOUS URBAN EXPRESSION

Type of graffiti ----- Stairs and Archway

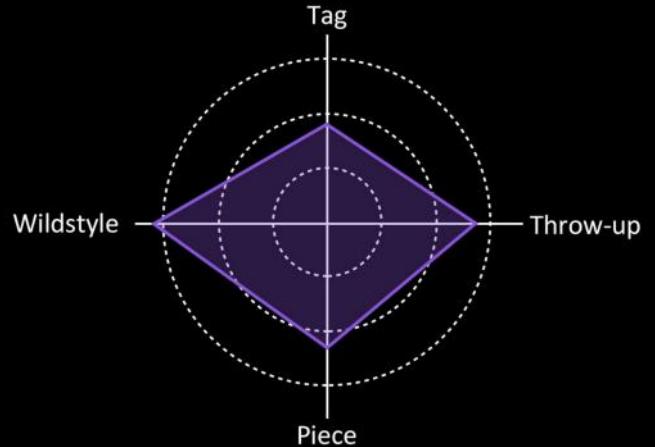
3D Realistic Scanning
Steps&Archway



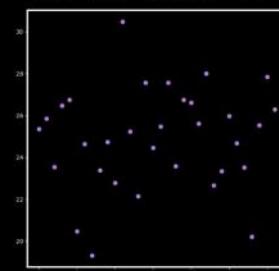
Photo selection
Stairs&Archway



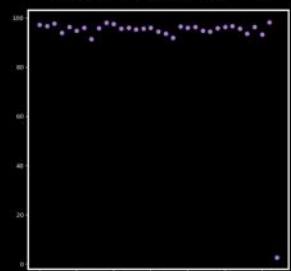
Typology and characteristics of graffiti



Color Disparity Scatter Plot



Color Entropy Scatter Plot



High color richness

Stereo images Scatter Plot

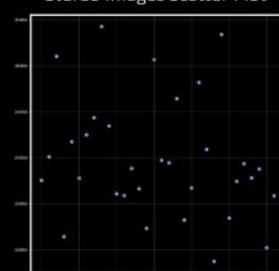
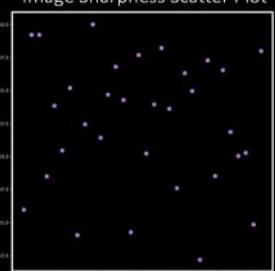


Image Sharpness Scatter Plot



High three-dimentional sense

Type of graffiti ----- Bridge

3D Realistic Scanning
Bridge

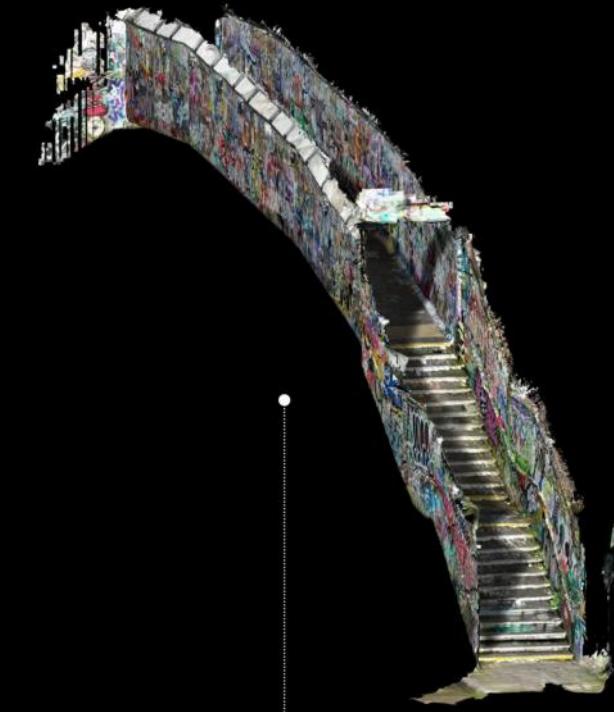
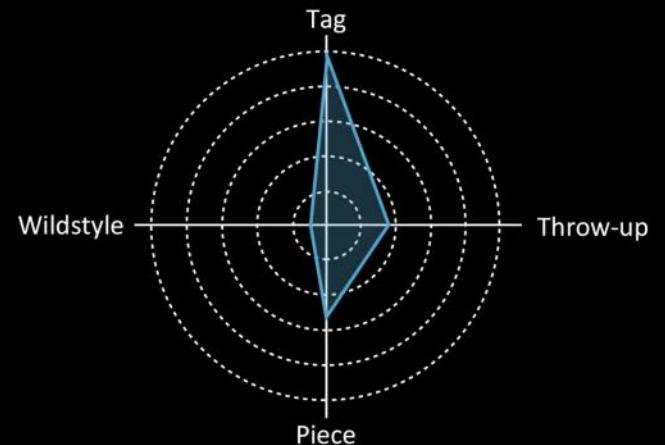


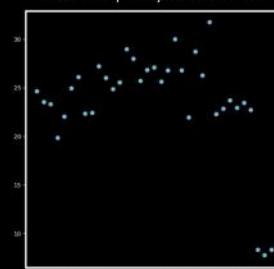
Photo selection
Bridge



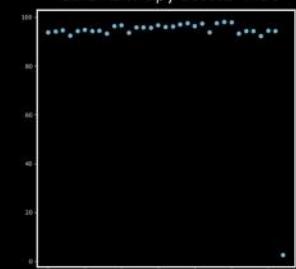
Typology and characteristics of graffiti



Color Disparity Scatter Plot



Color Entropy Scatter Plot



High color richness

Stereo images Scatter Plot

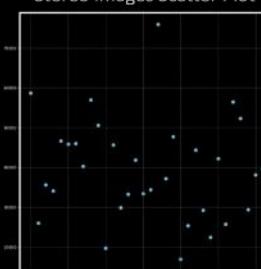
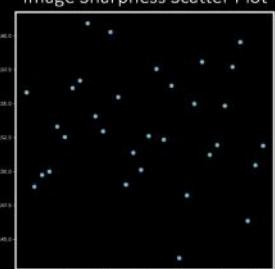


Image Sharpness Scatter Plot



High three-dimentional sense

High attractiveness alley space

3D Realistic Scanning Alley

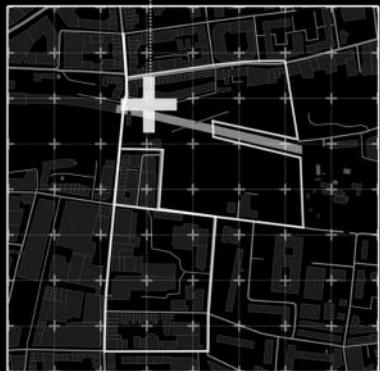
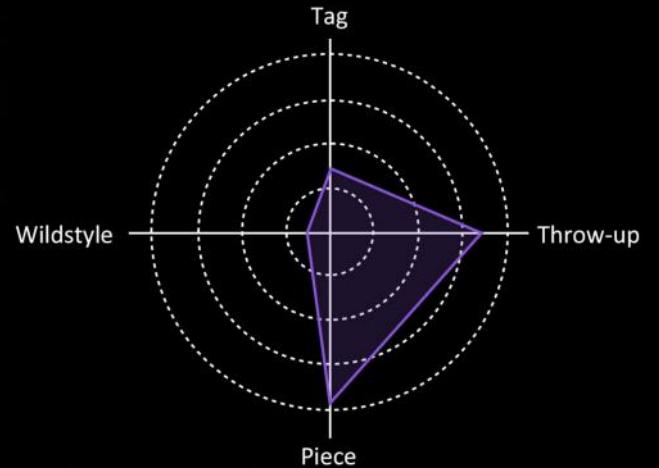


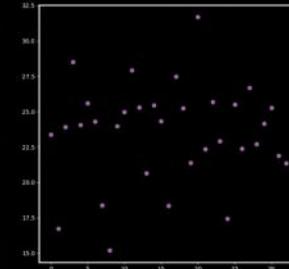
Photo selection
Alley



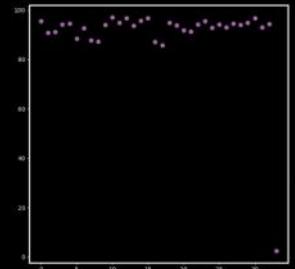
Typology and characteristics of graffiti



Color Disparity Scatter Plot



Color Entropy Scatter Plot



High color richness

Stereo images Scatter Plot

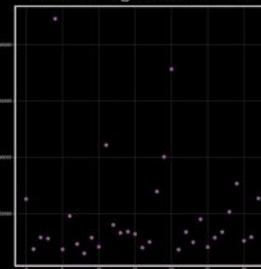
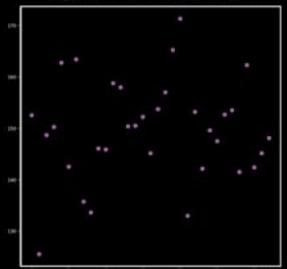
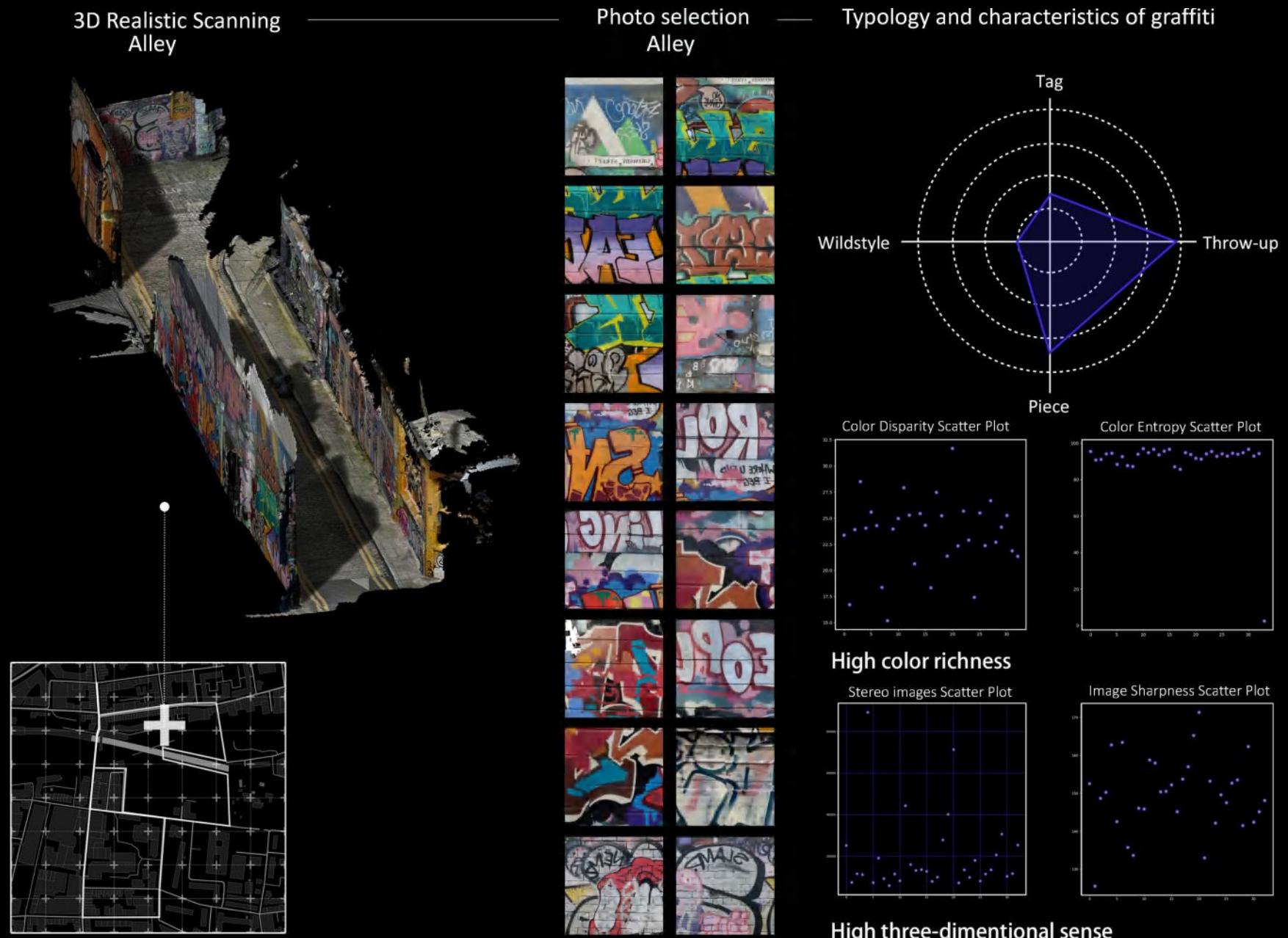


Image Sharpness Scatter Plot

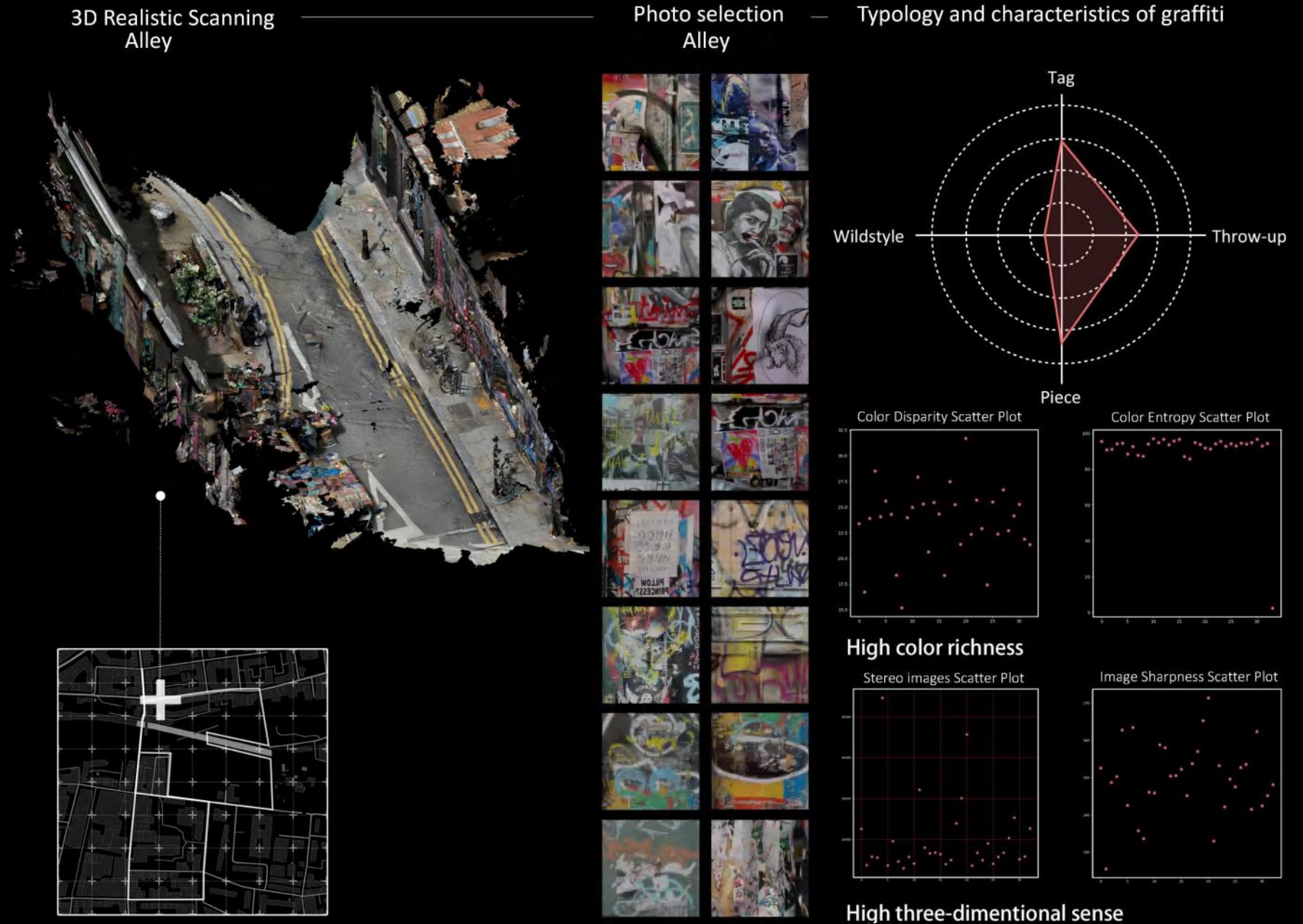


High three-dimentional sense

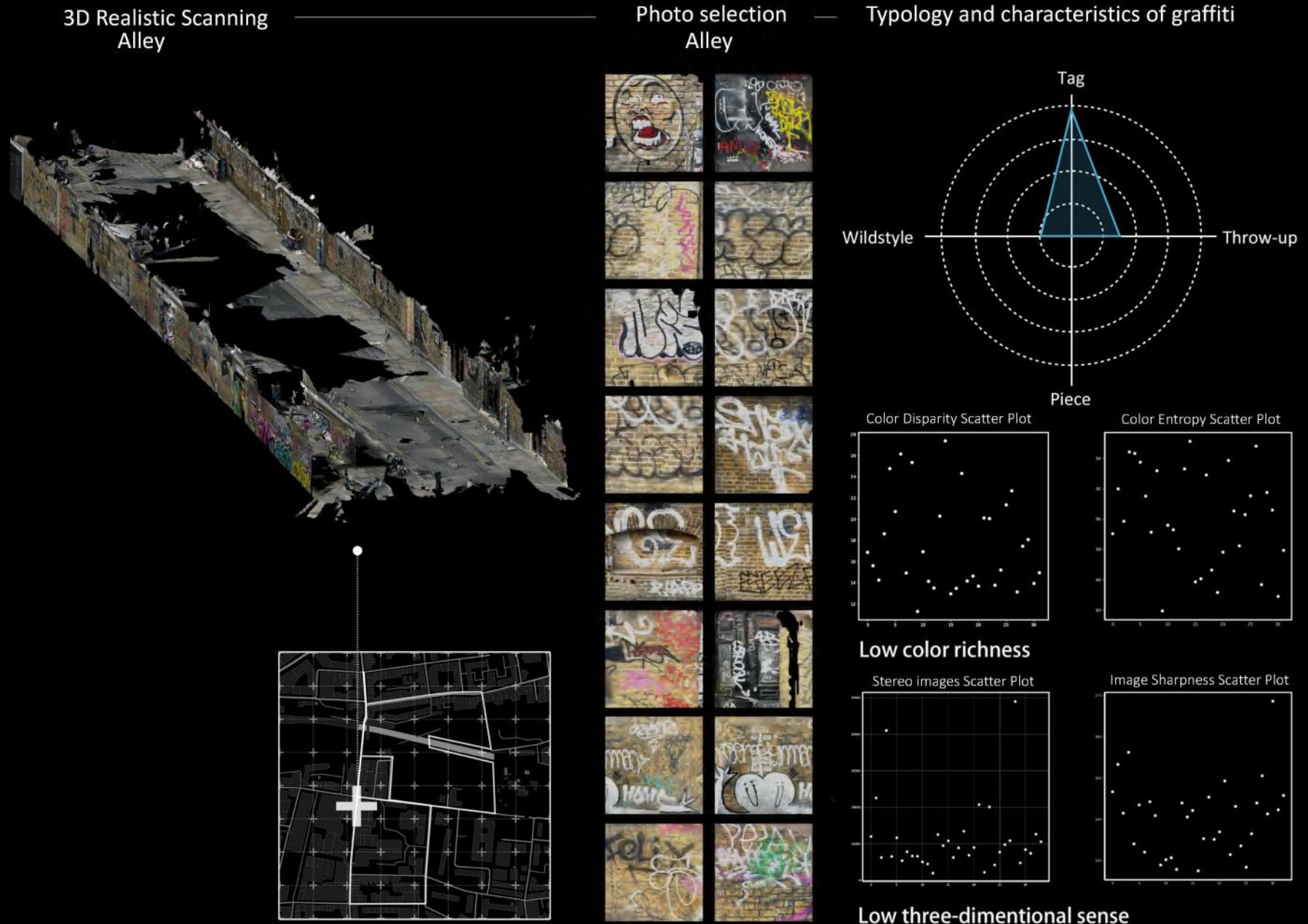
High attractiveness alley space



High attractiveness alley space



Low attractiveness alley space



Low attractiveness alley space

3D Realistic Scanning Alley

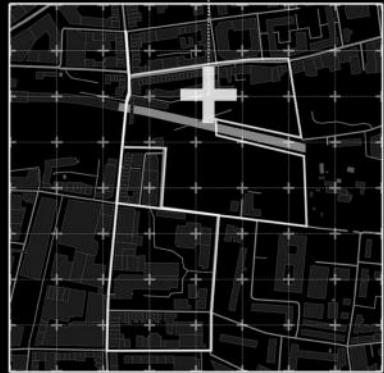
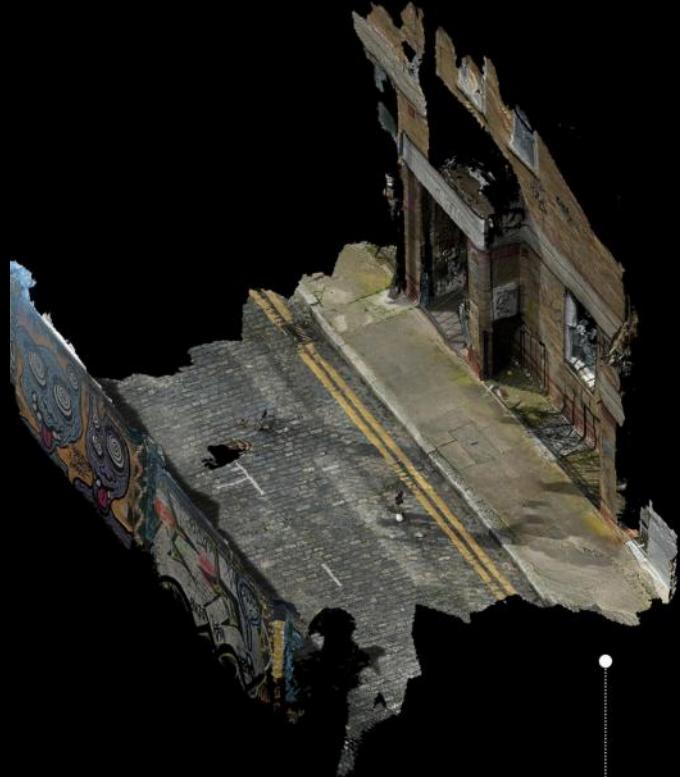
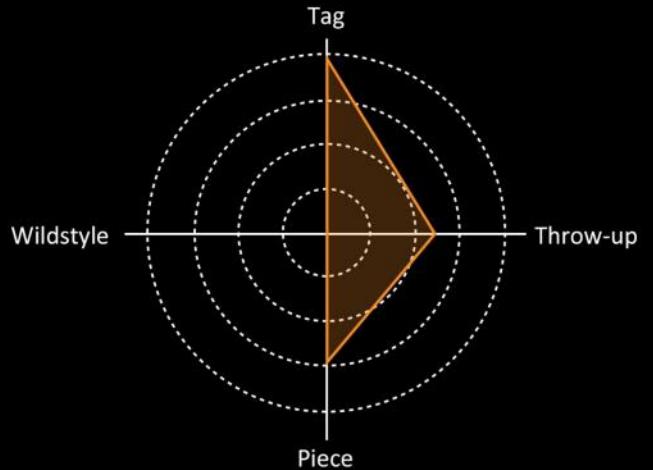


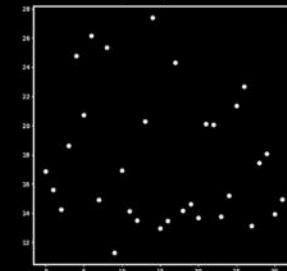
Photo selection Alley



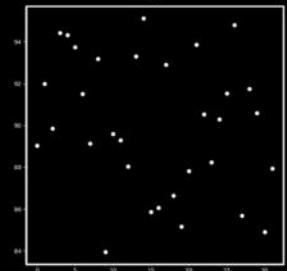
Typology and characteristics of graffiti



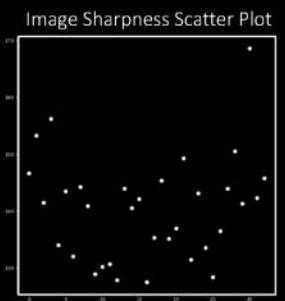
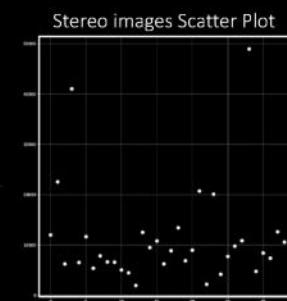
Color Disparity Scatter Plot



Color Entropy Scatter Plot



Low color richness



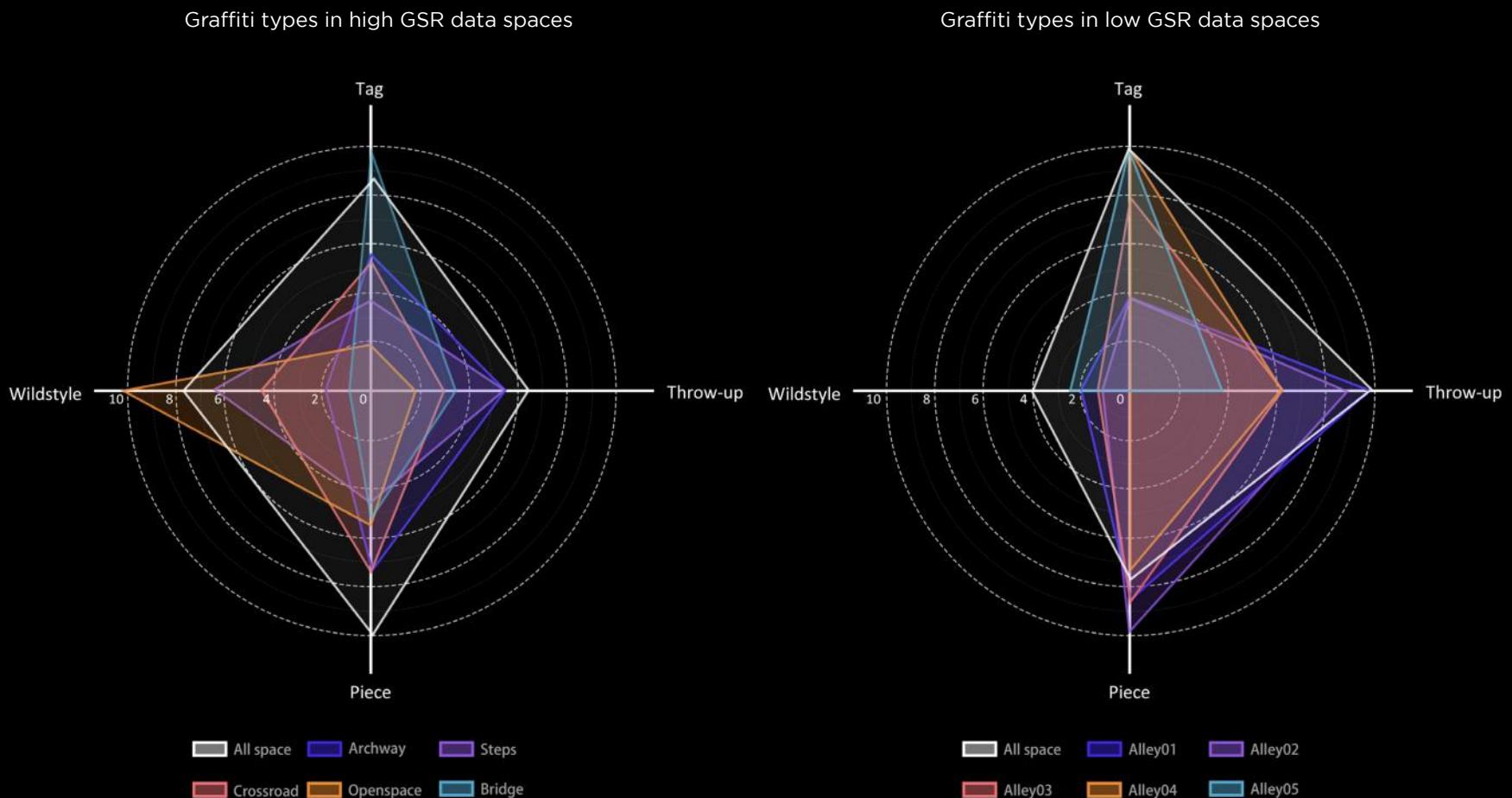
Low three-dimentional sense

Relationship between graffiti types and space types

The map on the left demonstrates the richness and variety of graffiti colours and densities that may elicit noticeable changes in mood. These locations also show high GSR values, indicating emotional arousal, and exhibit spatial variation. In contrast, the locations in the figure on the right did not show significant changes in mood in the

GSR test. The common feature of these locations is that they are all similar spaces - alleys. Three of the alleys present a relatively rich variety of graffiti, while the other two are monotonous spaces. However, all of these locations exhibit low GSR values and do not present high attractiveness. From a graffiti art perspective, it would seem

that these graffiti-rich locations should elicit emotional changes. However, the reality showed that these locations did not evoke a noticeable change in people's emotions. Therefore, monotonous spaces that lack variation may also lead to lack of attractiveness.

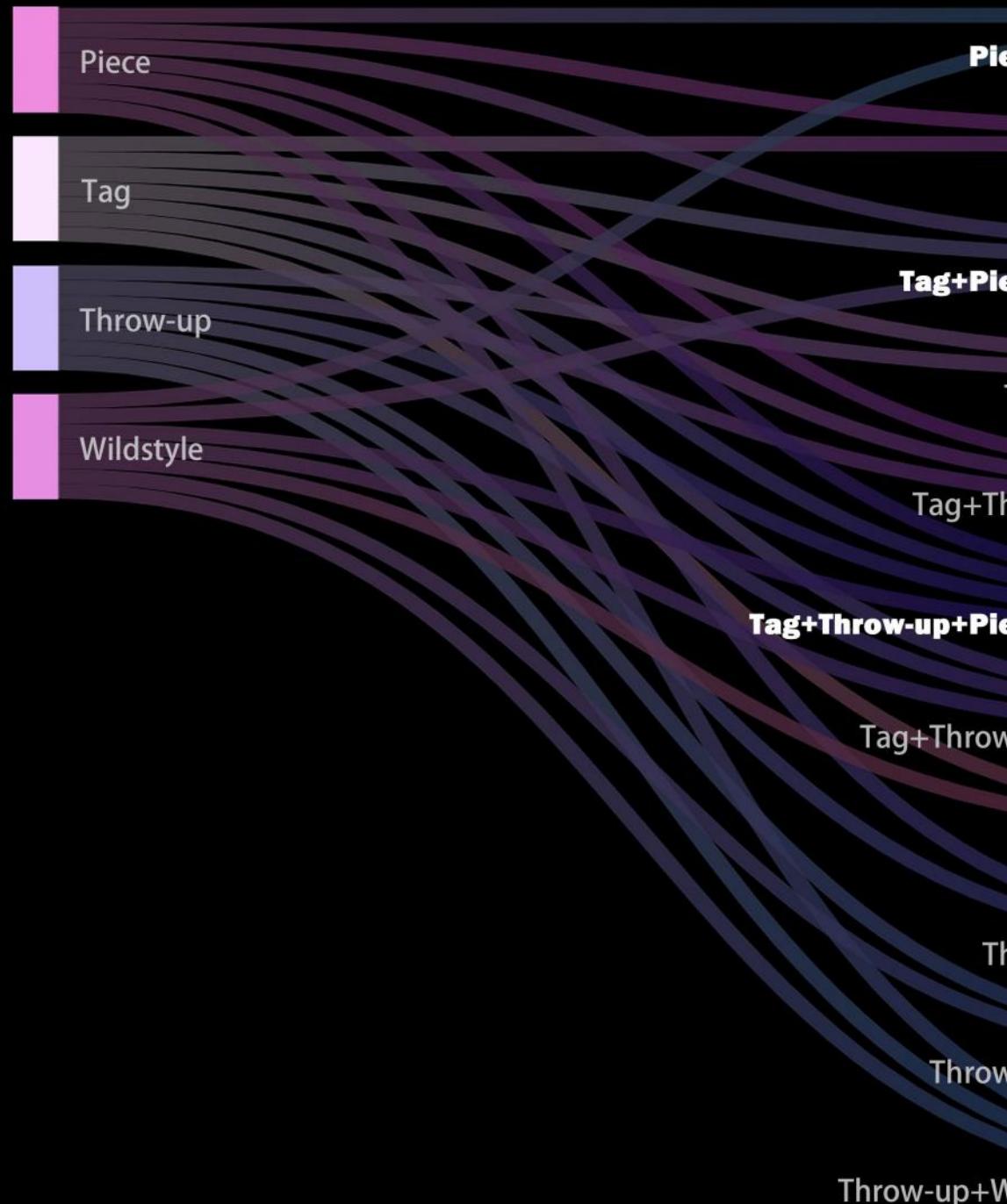


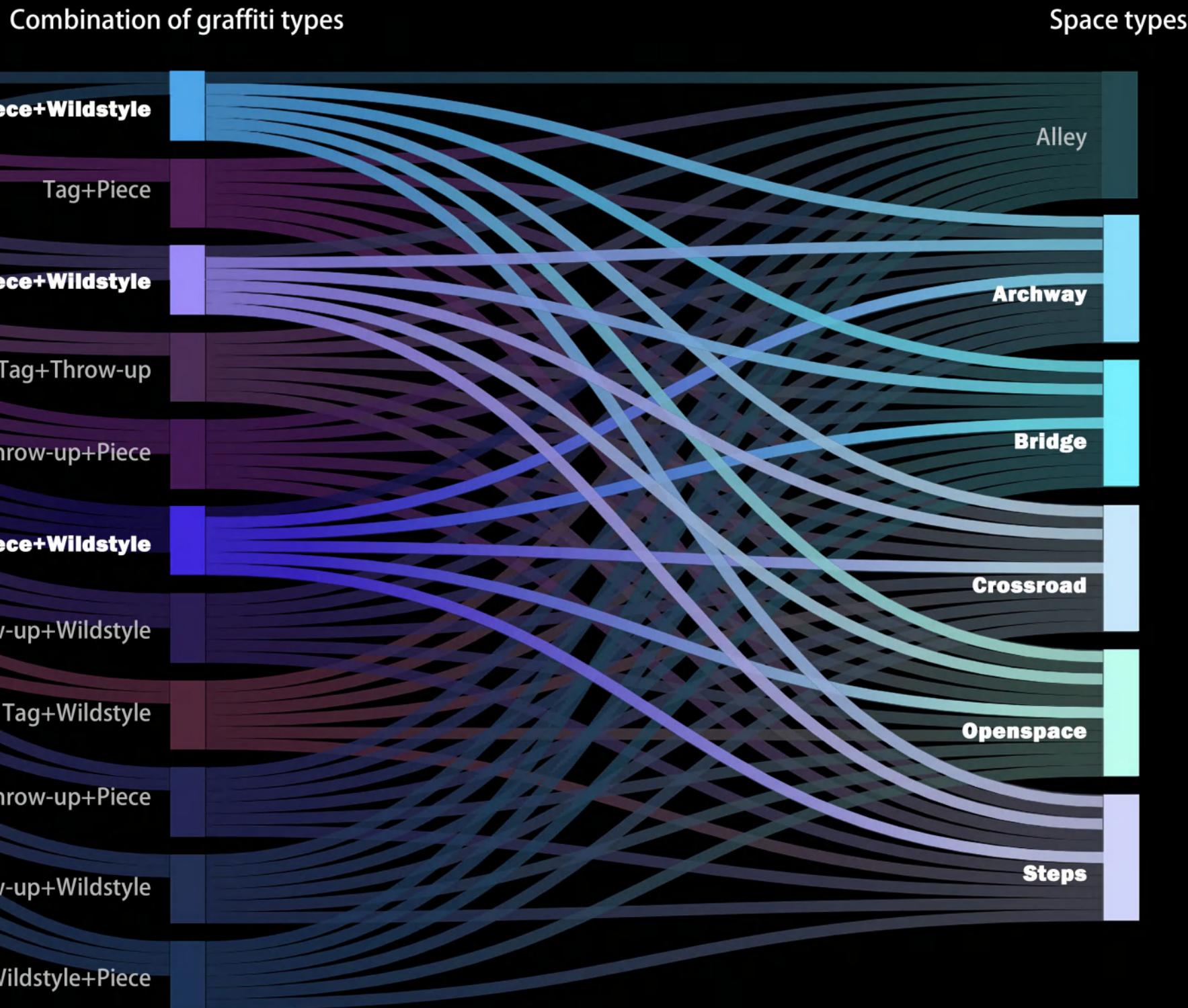
Attractiveness Analysis

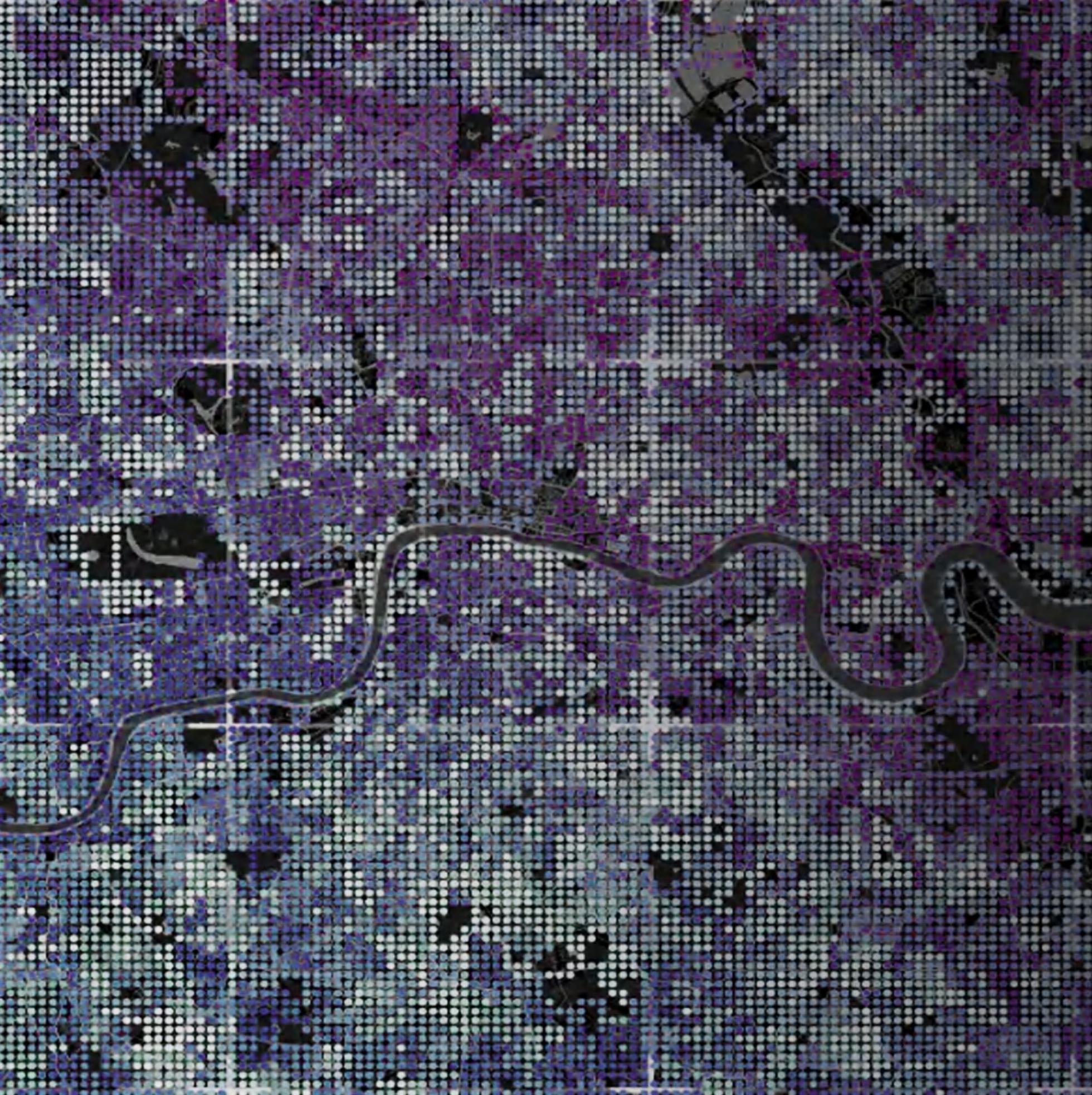
Combination of graffiti types and space types

When comparing the types of graffiti in different zones, it becomes evident that the graffiti in High Emotion Change areas tends to feature colorful styles such as Wildstyle and Piece. In contrast, graffiti in Low Emotion Change zones is more likely to be monochromatic, including styles like Tag and Throw-up. This observation suggests that both spatial proportions and the type of graffiti significantly influence people's emotional responses. The vibrant, intricate graffiti in high-emotion areas appears to engage and stimulate positive emotions, making these spaces more inviting. Conversely, the more subdued and straightforward graffiti in low-emotion areas may contribute to a sense of detachment or restriction, affecting how people interact with and perceive these spaces.

Graffiti types







Chapter 04

Site Analysis

Site Selection
Accessibility Analysis
Density Analysis
Sunlight Analysis
Agent Behavior Simulation

Site Selection

Shoreditch, London

London has 11 designated legal graffiti zones, with Shoreditch being home to the largest and most concentrated collection of graffiti. This makes Shoreditch the ideal location for our project. Additionally, Shoreditch is a popular destination for tourists, offering convenient access to public transportation and surrounded by a variety of shops and amenities. The area's vibrant street art scene, combined with its accessibility and lively atmosphere, makes it a perfect site for exploring and showcasing urban graffiti culture.



Ally Pally



The Pit - Ladbroke Grove



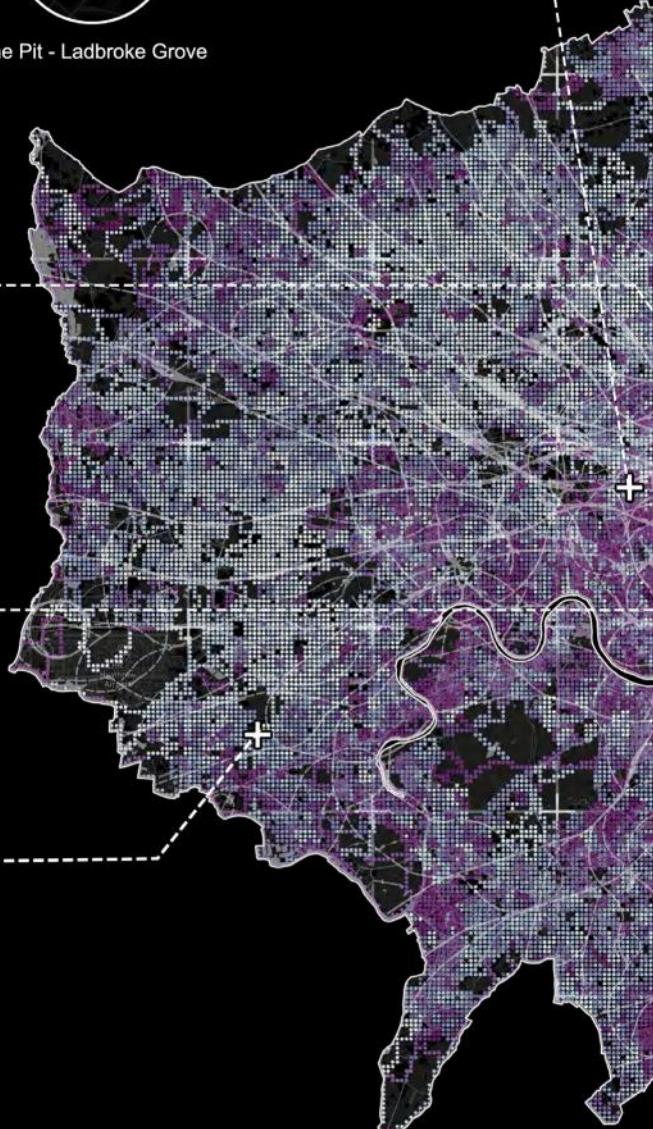
Southbank

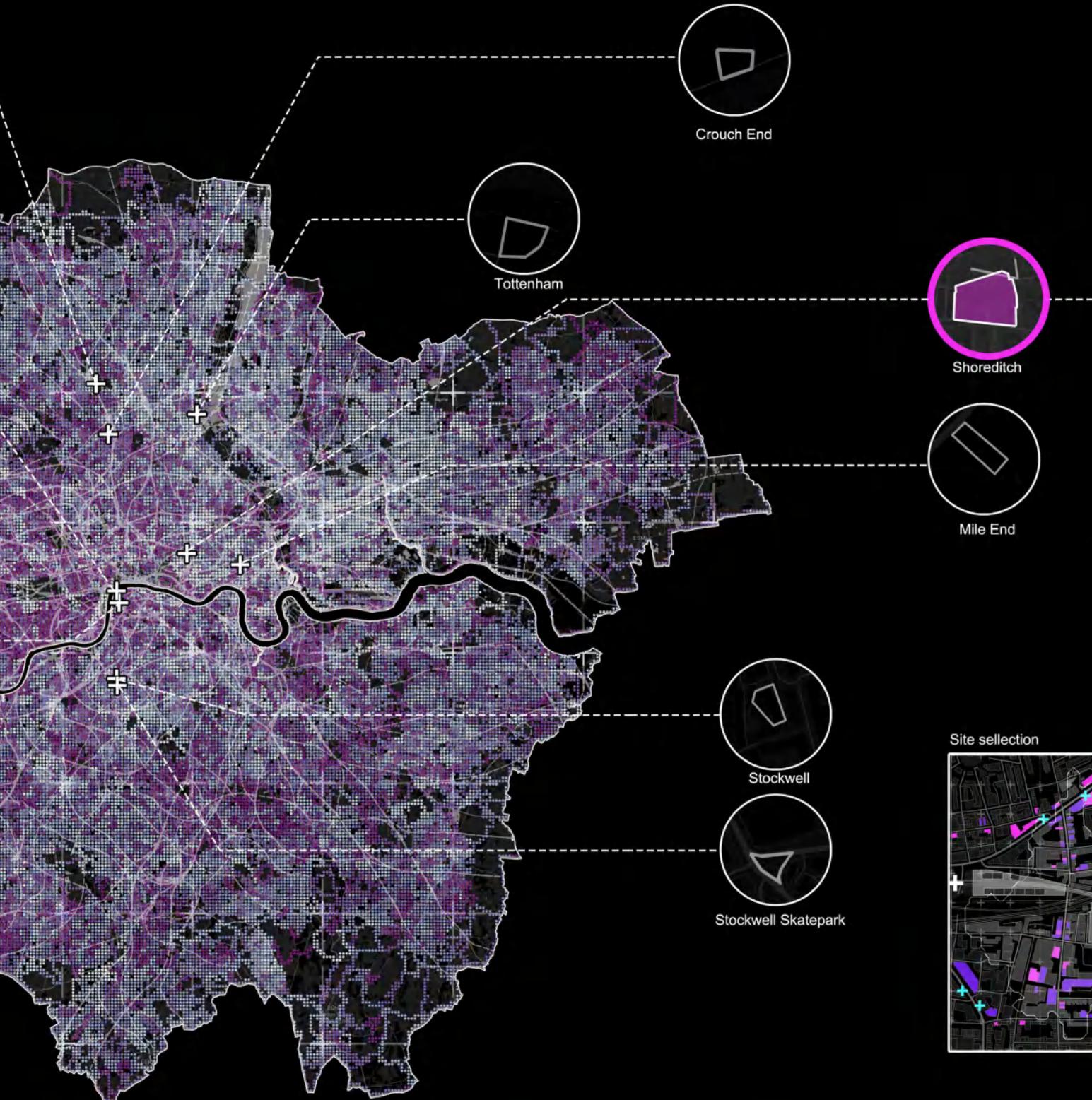


Leake Street Tunnel



Feltham Bowls





railway

+ legal graffiti wall

shop

restaurant

park

+ bus station

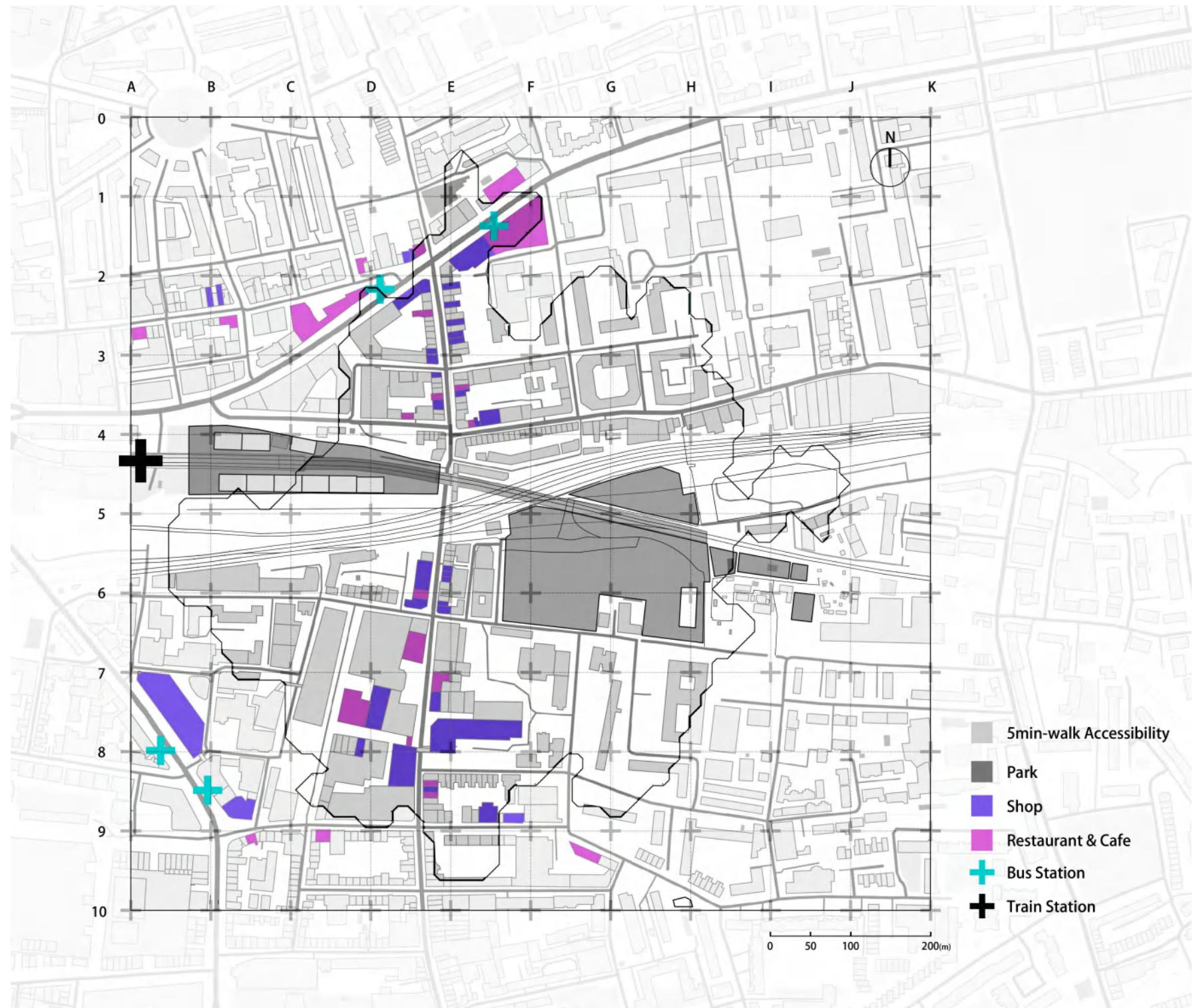
Accessibility Analysis

Stations



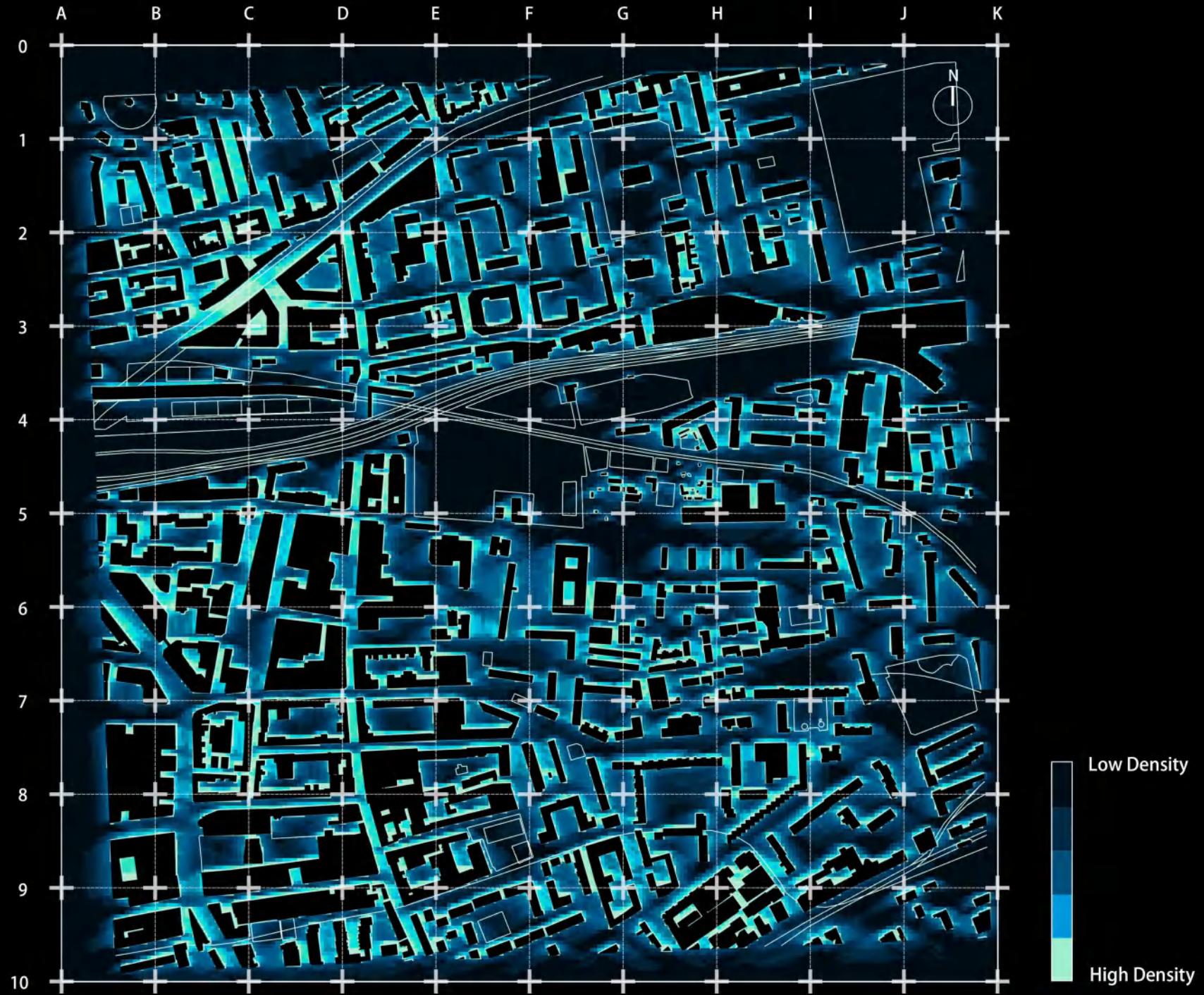
Accessibility Analysis

Shops and restaurants



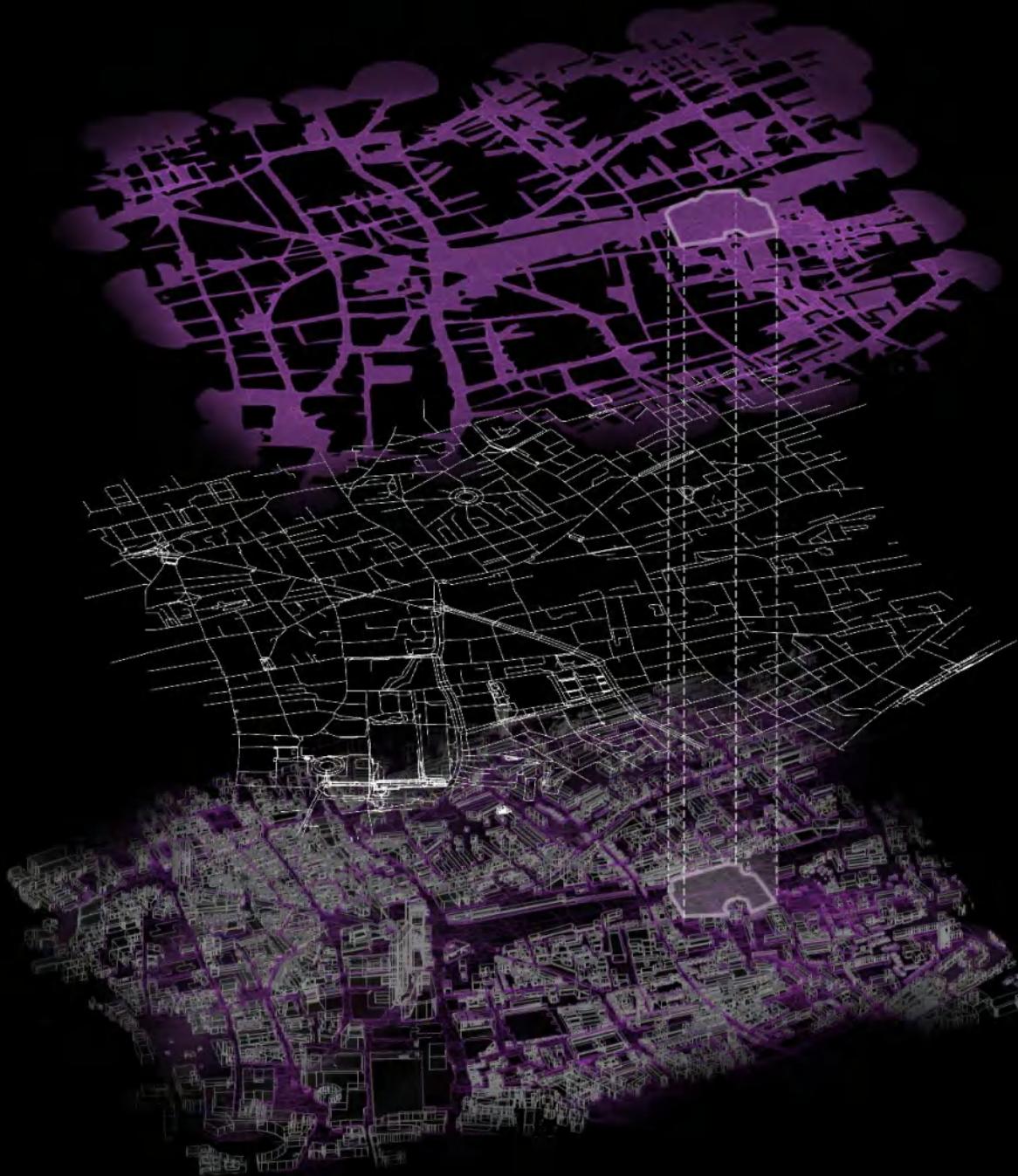
Density Analysis

Identify open space



Density Analysis

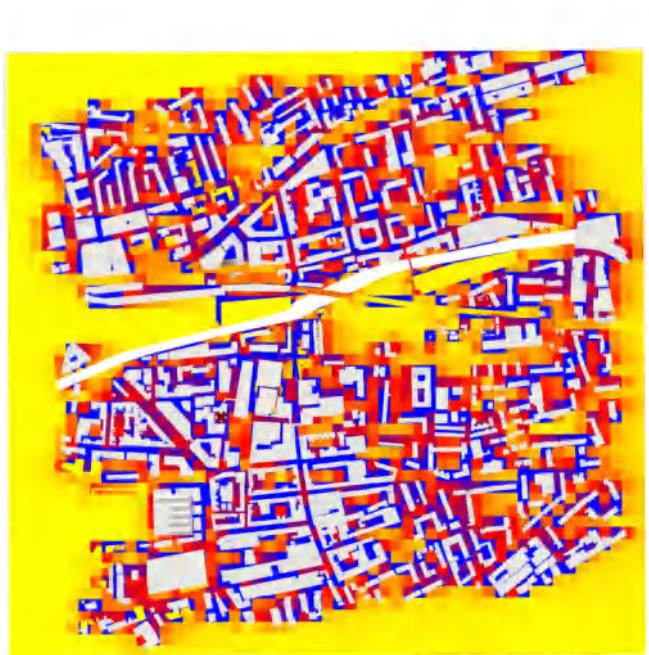
Identify location with wide field of view



Density analysis and isovist techniques were employed to identify open areas in the city. Allen Gardens emerged as the optimal site due to its prior graffiti analysis, the presence of legal graffiti walls, and its status as the largest nearby open space. This thorough evaluation determined Allen Gardens as the ideal location for the project, offering a suitable context for artistic expression and ample space for creative activities.

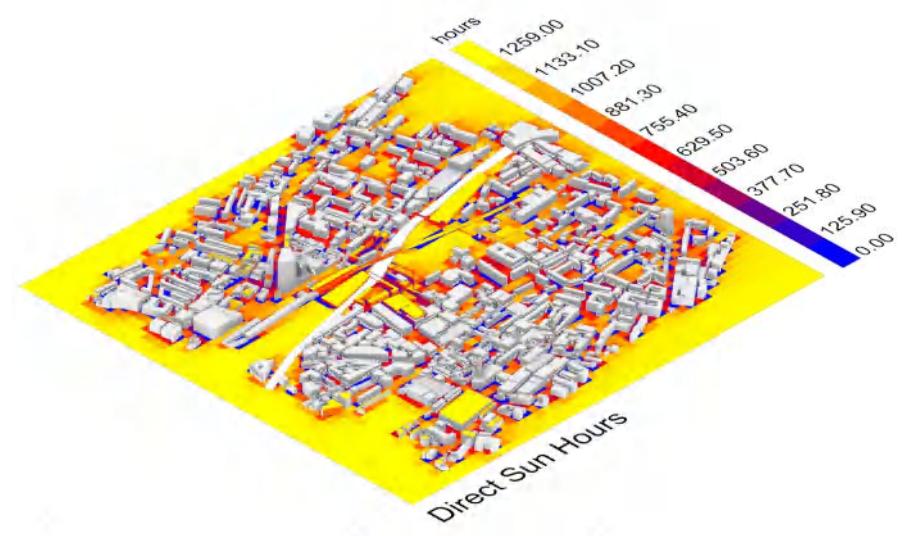
Sunlight Analysis

Direct sun hours



hours

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1133.10
1007.20
881.30
755.40
629.50
503.60
377.70
251.80
125.90
0.00

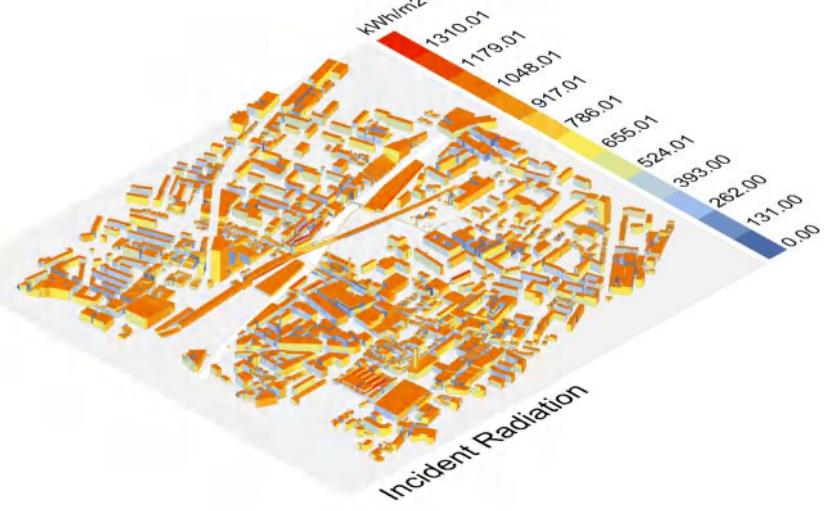


Direct Sun Hours



hours

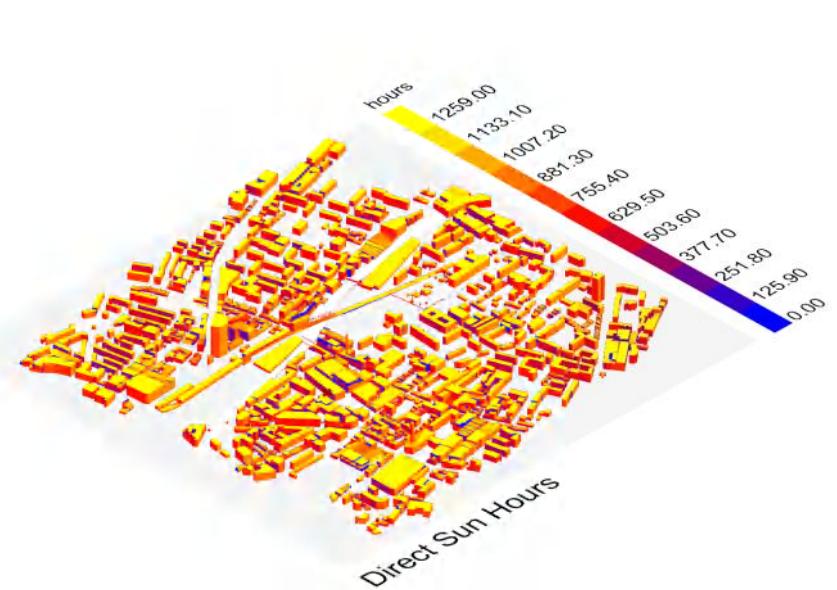
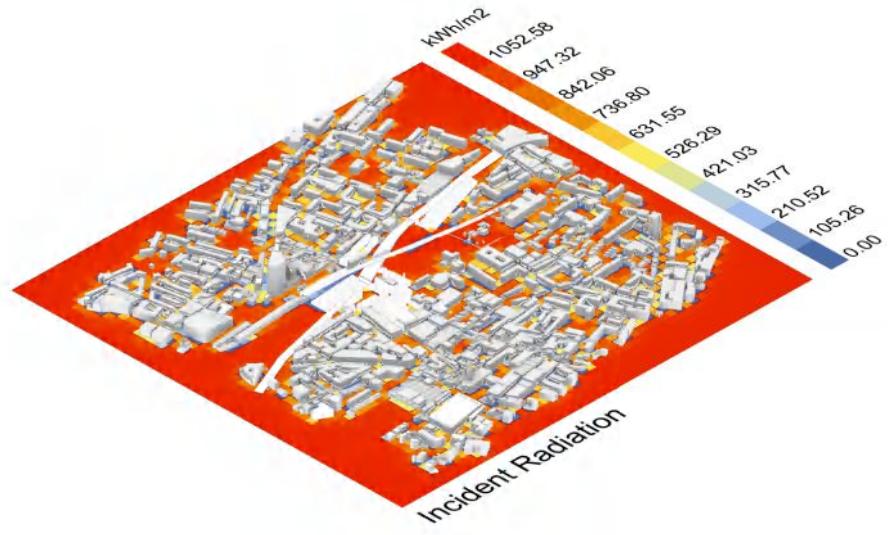
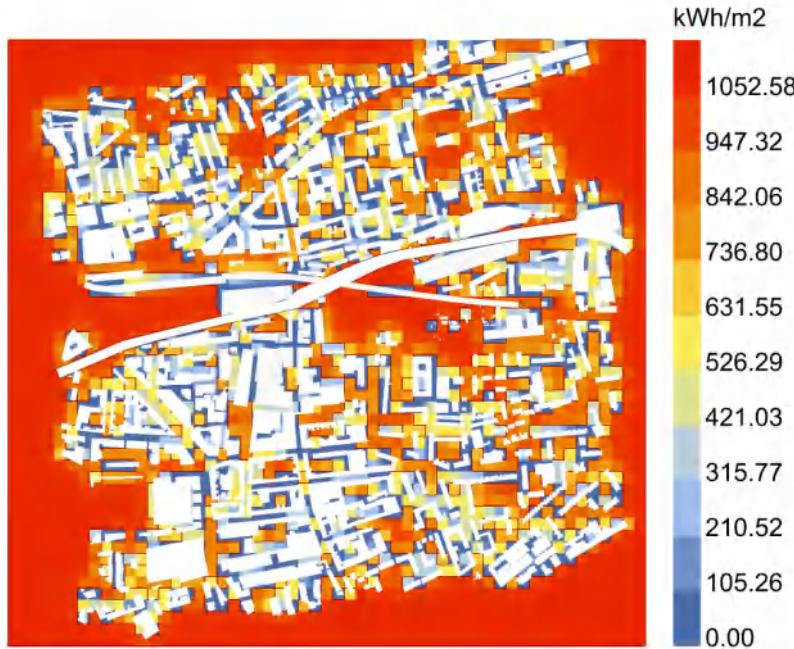
1259.00
1133.10
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503.60
377.70
251.80
125.90
0.00



Incident Radiation

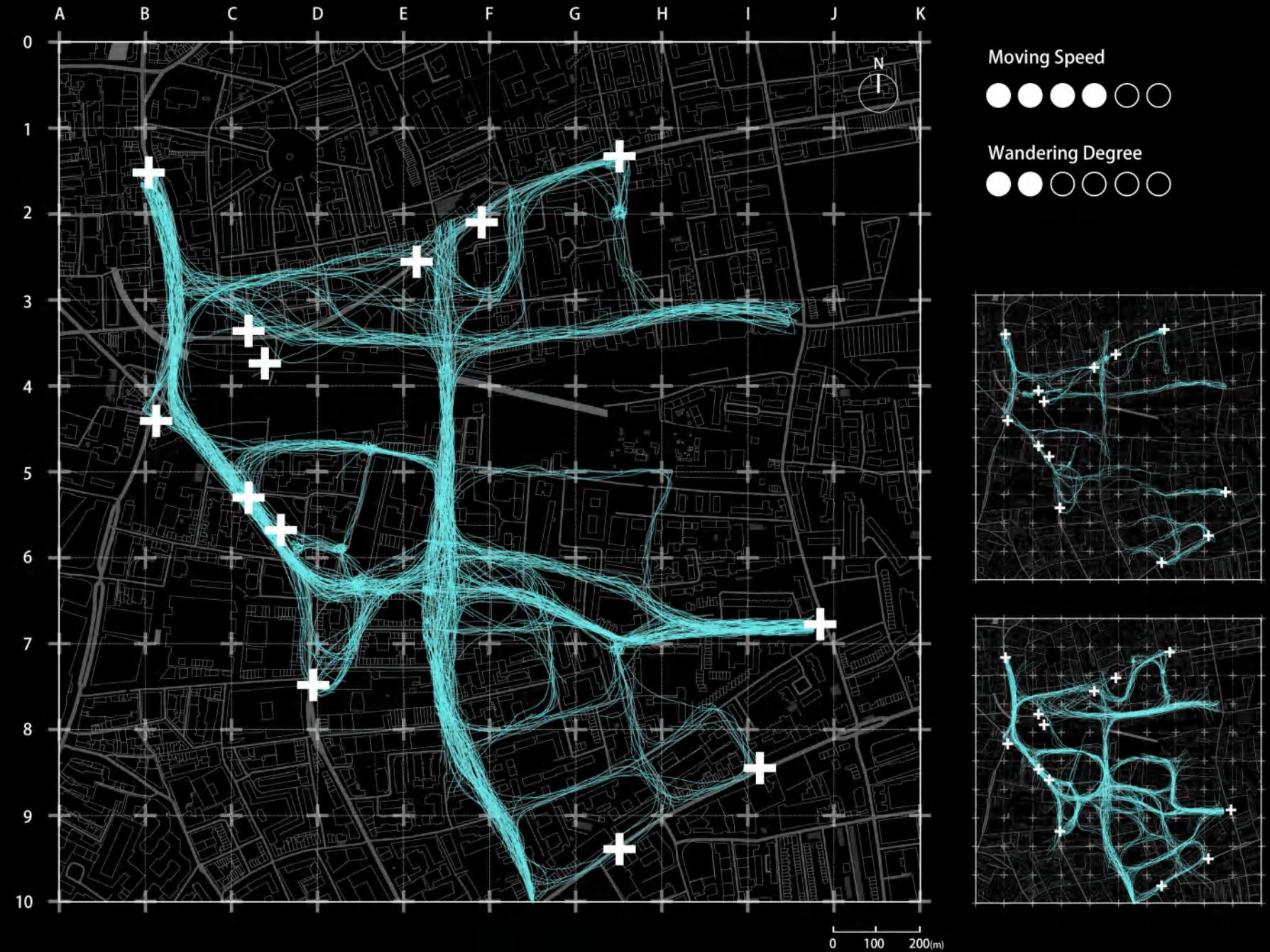
Sunlight Analysis

Incident radiation



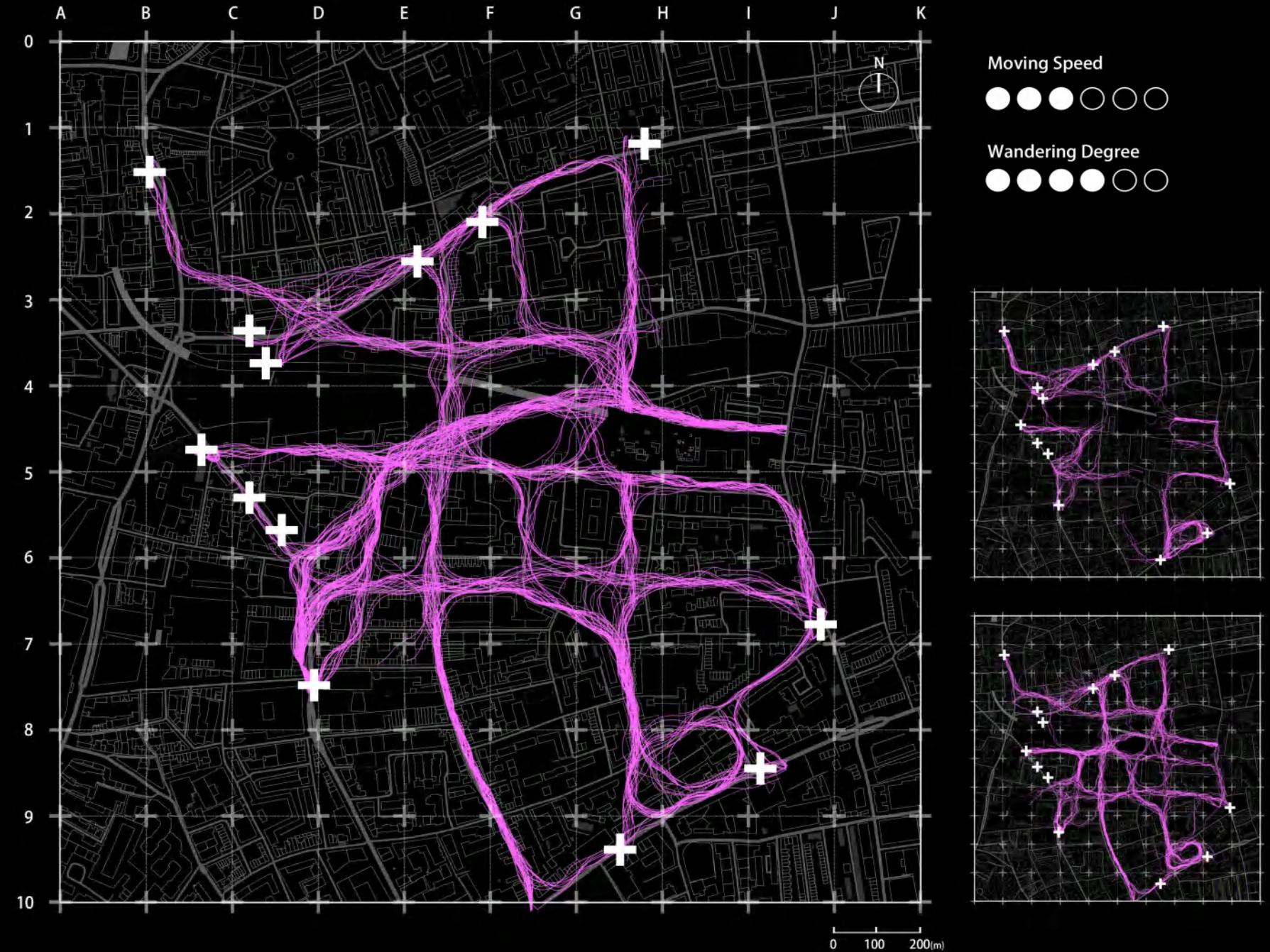
Agent Behavior Simulation

Consumer



Agent Behavior Simulation

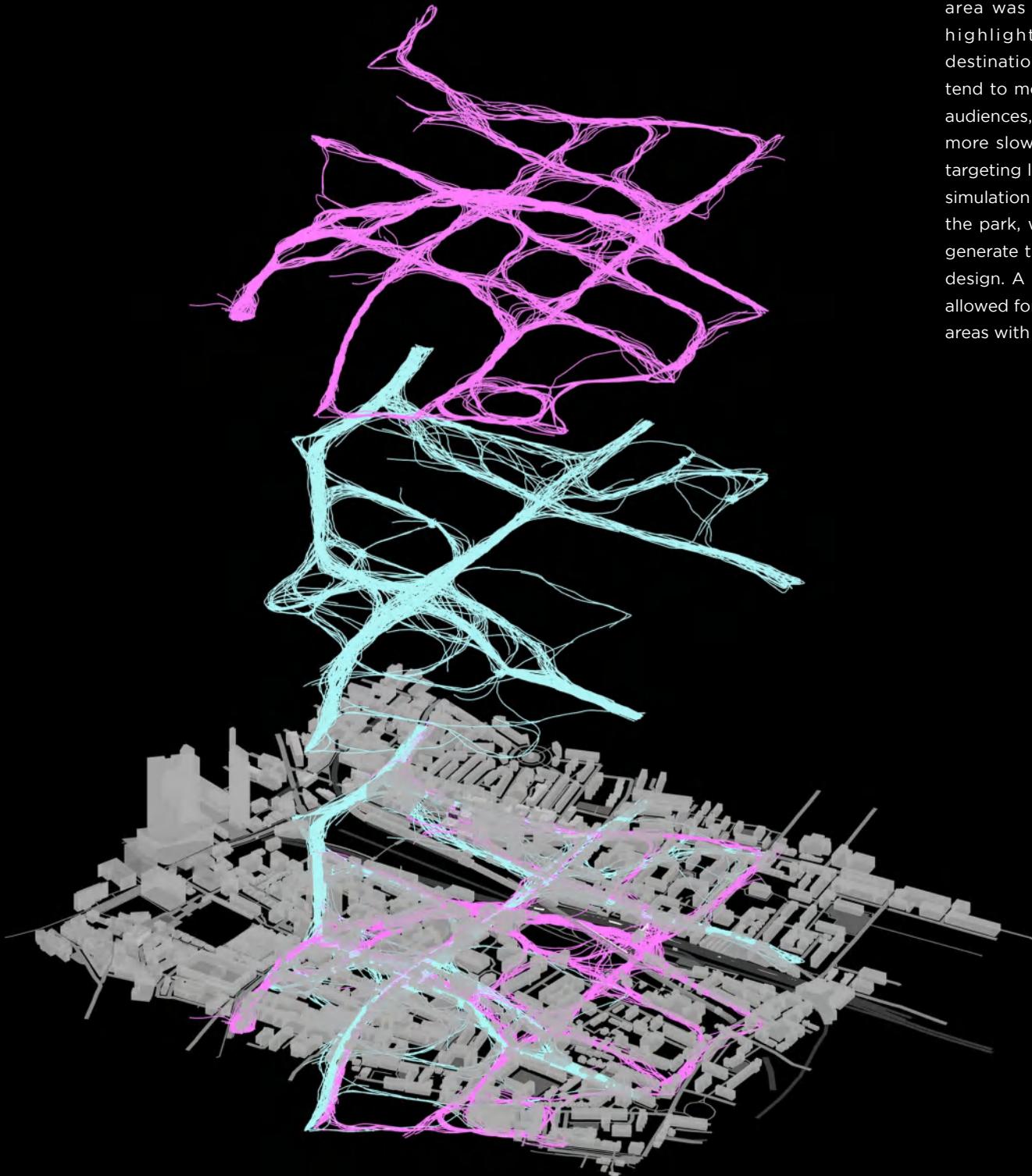
Audience



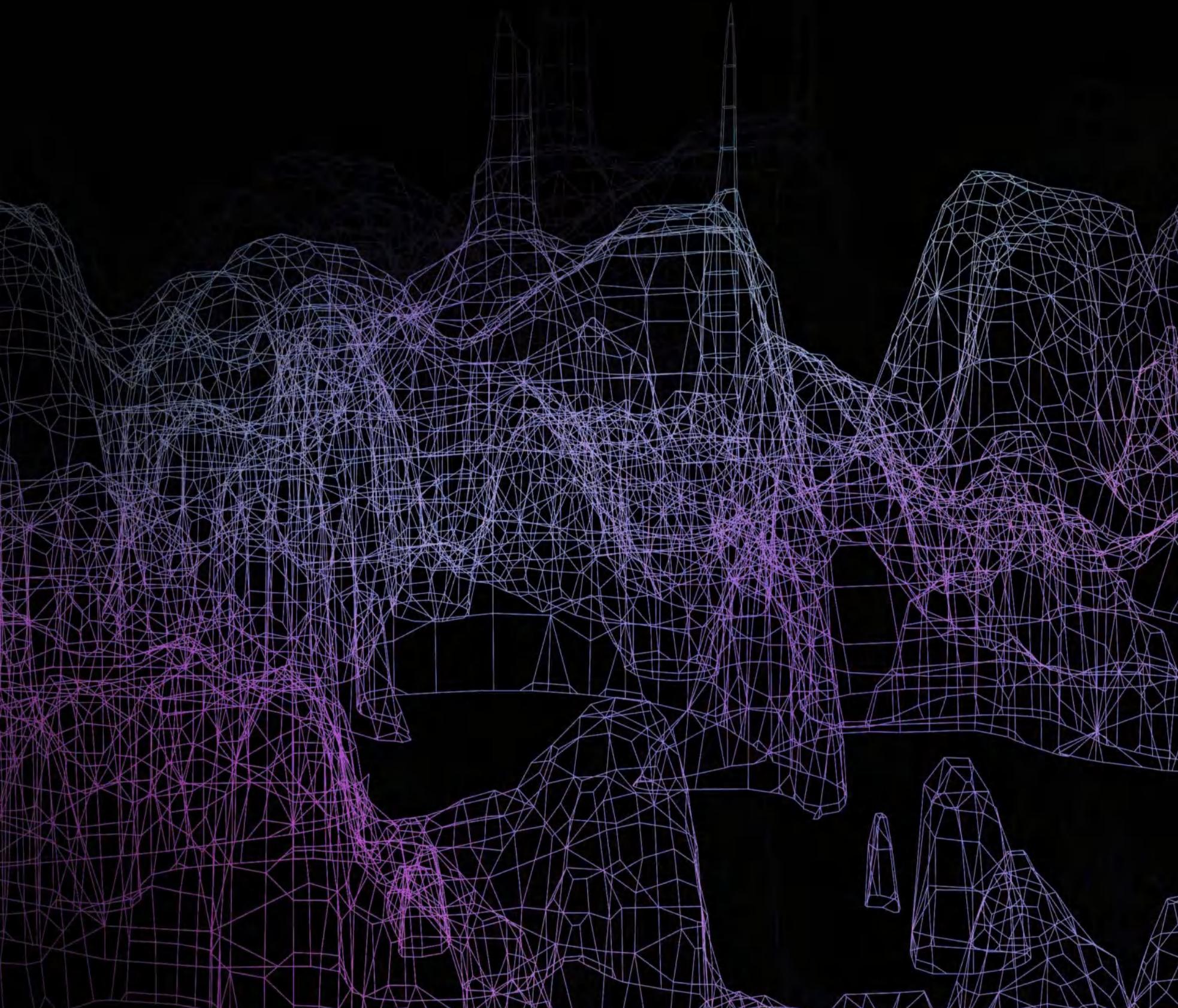
Threshold Identification

Entrance and exits of the park





A pedestrian flow simulation for the Shoreditch area was generated based on the road network, highlighting different crowd behaviors and destinations. Consumers, starting from the station, tend to move quickly with minimal wandering, while audiences, focused on appreciating graffiti art, move more slowly and explore the area more extensively, targeting legal walls and potential graffiti stages. The simulation identified four main entrances and exits to the park, which were then used as control points to generate the shortest paths as the base route for the design. A 3D route simulation based on these paths allowed for the analysis of pedestrian flow, identifying areas with the highest concentration of people.



The background of the slide features a complex, abstract wireframe landscape composed of numerous interconnected triangles in shades of purple, blue, and white. This geometric terrain spans across the entire page, creating a sense of depth and structure.

Chapter 05

Design Proposal

- Brief Definition
- Behaviour Identification
- Modular Design
- Route Design
- Sphere Packing Theorem
- Function Partition
- Material Research
- Texture Research

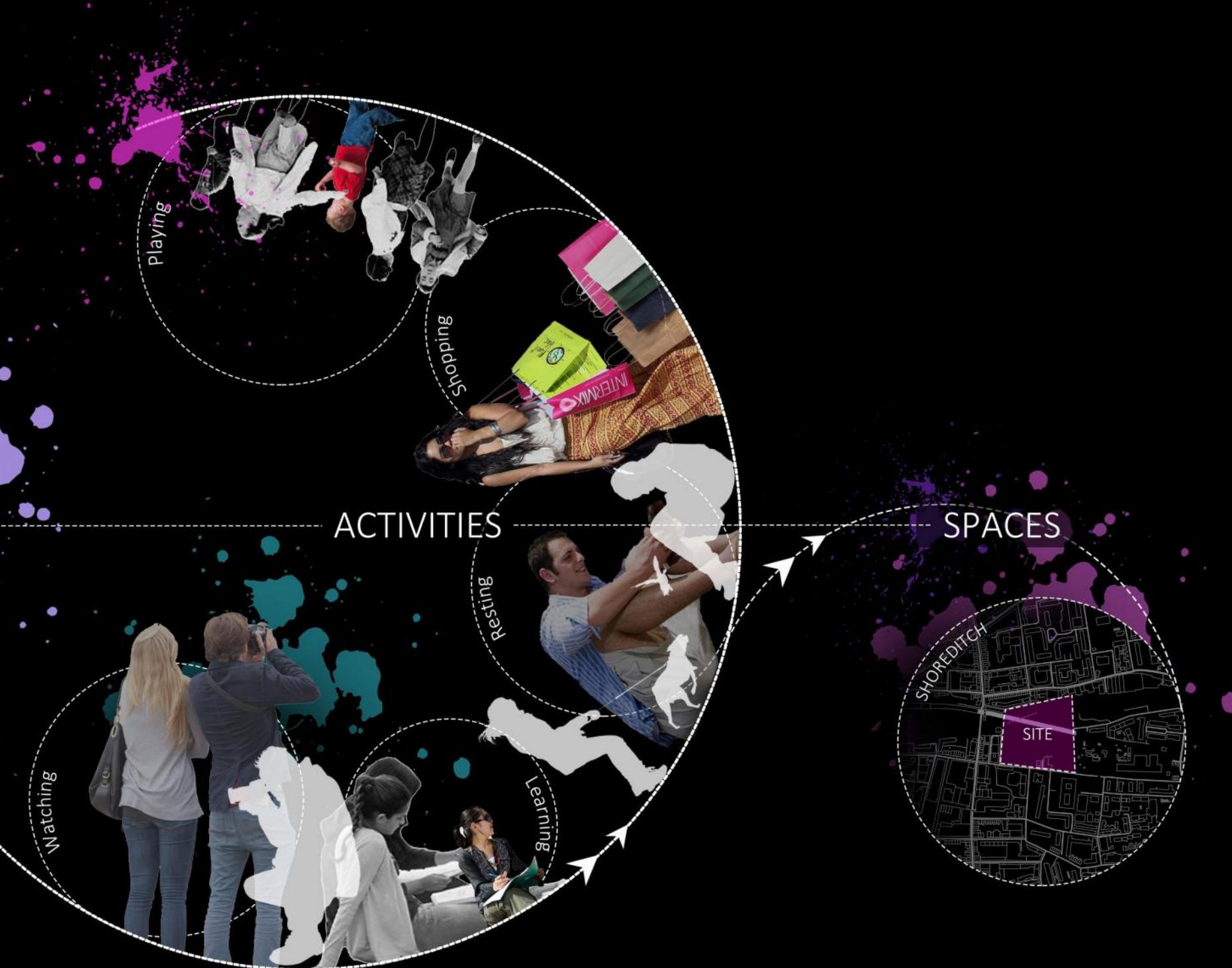


Brief Definition

Concept

The challenge of misunderstanding between creators and receivers is a significant issue within the graffiti community. To address this, efforts are made to promote inclusive and diverse forms of urban expression. This involves creating and supporting rich, interactive event spaces that facilitate open dialogue between artists and the public. Through these initiatives, graffiti is not only celebrated as an artistic medium but also as a transformative force within the city. It integrates dynamically with the urban landscape, contributing to a more vibrant and engaged community. By bridging gaps in understanding and encouraging active participation, graffiti can play a key role in shaping and enriching the cultural fabric of the city.

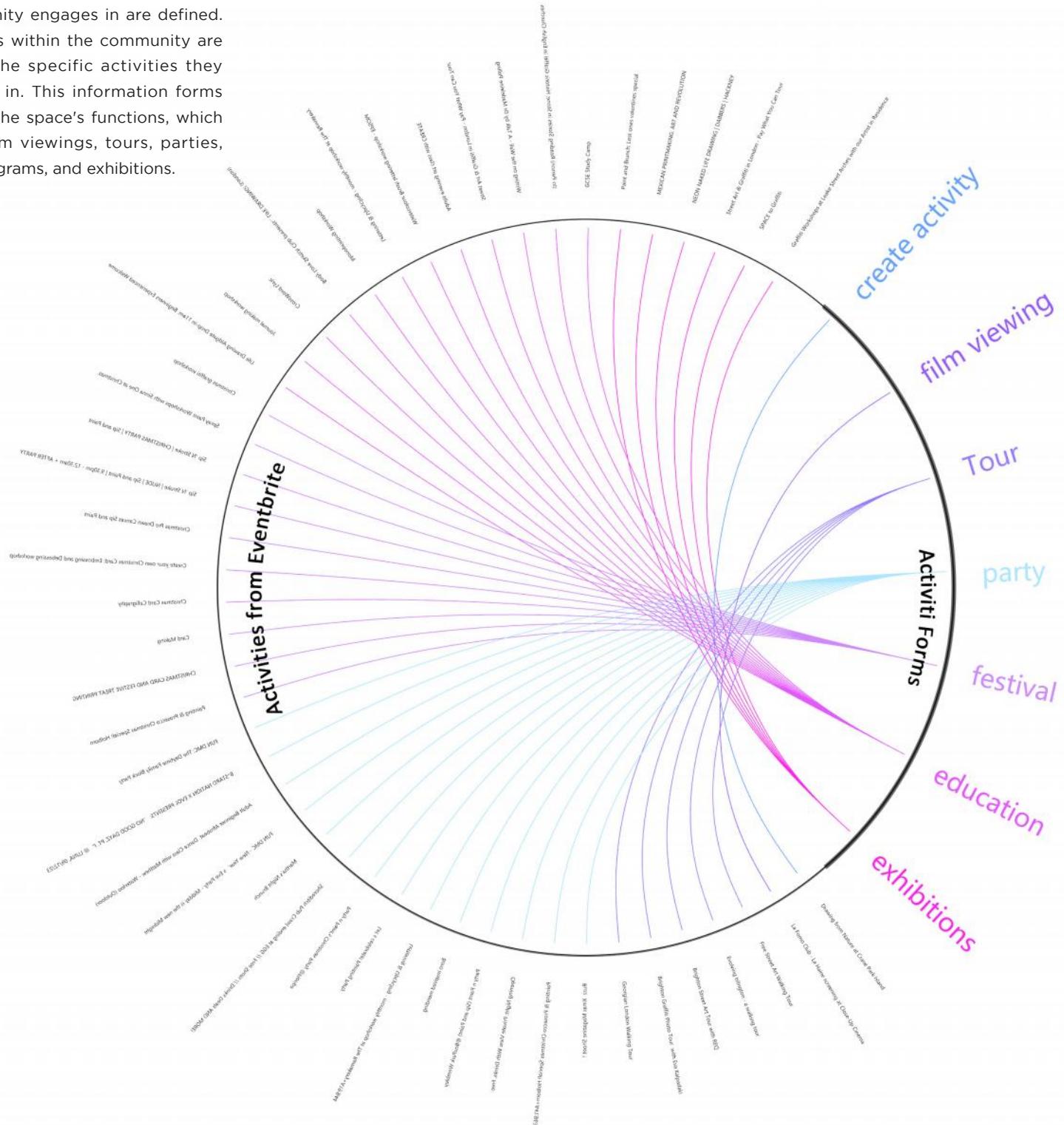




Activity Form of Graffiti in London

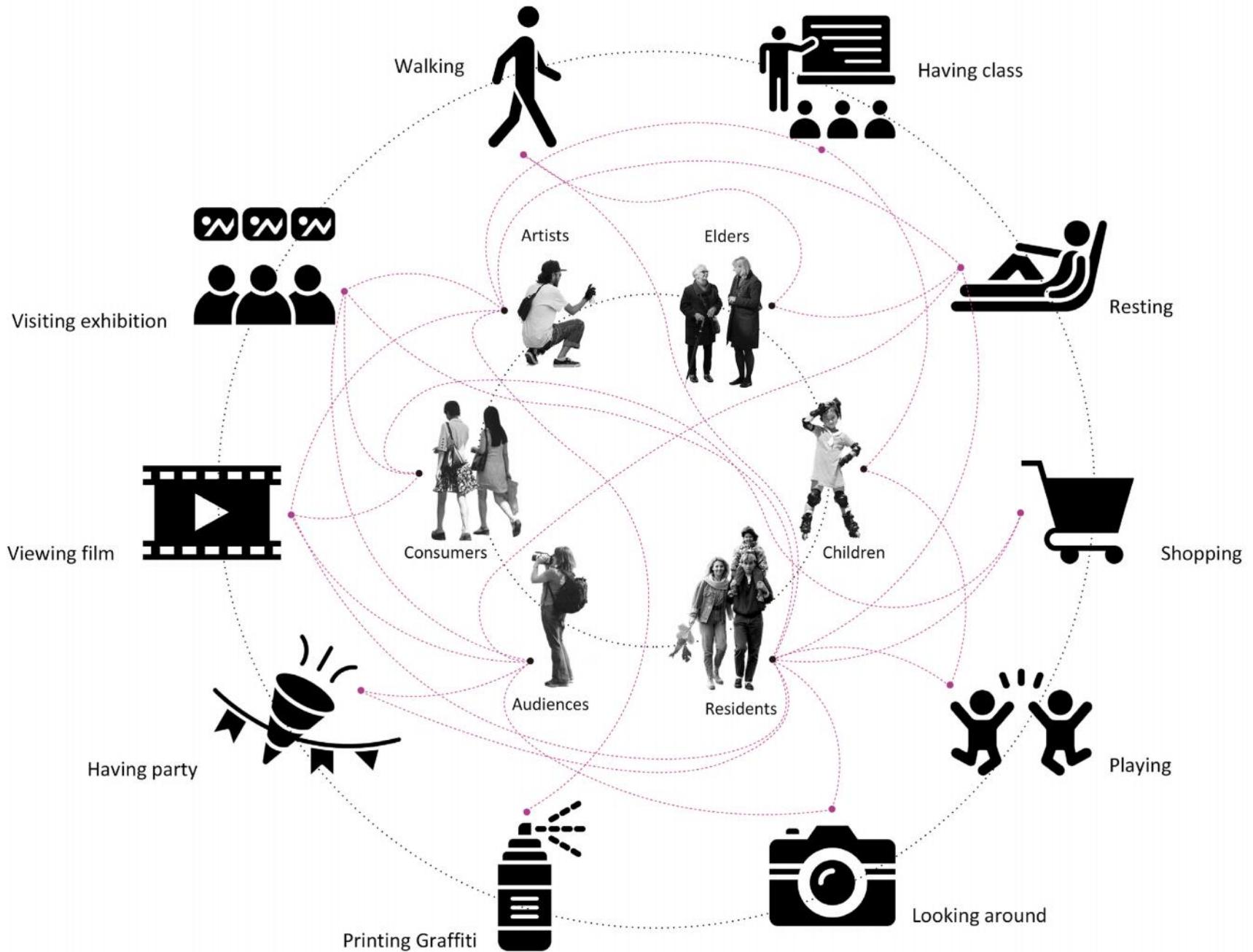
Forms of graffiti activities in Eventbrite

Using data from Eventbrite, the types of activities that the graffiti community engages in are defined. Next, the various groups within the community are identified, along with the specific activities they are likely to participate in. This information forms the basis for designing the space's functions, which include creating art, film viewings, tours, parties, festivals, educational programs, and exhibitions.



Behaviour Identification

Format of activities for each population type

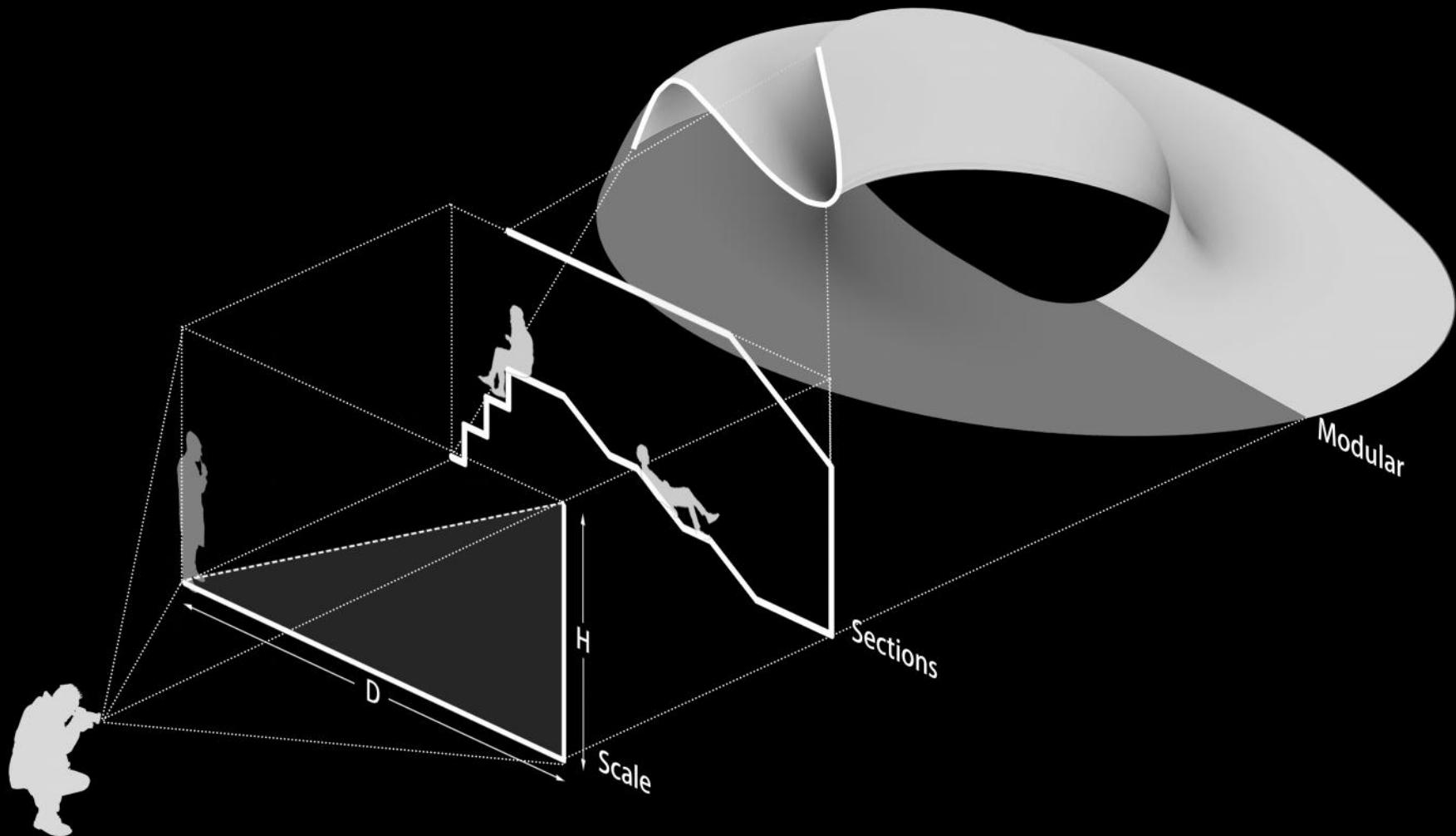


Generative Logic

Module generation

The design process begins with a thorough understanding of the various groups within the community and the specific activities in which each group will participate. When generating the model's design logic, different spaces are assigned to represent various behaviors. These spaces are then used to create distinct spaces tailored to the needs

and activities of each group. By carefully mapping out the behavior patterns and preferences of all community members, the design ensures that the generated spaces are both functional and inclusive, catering to the diverse needs of the community.



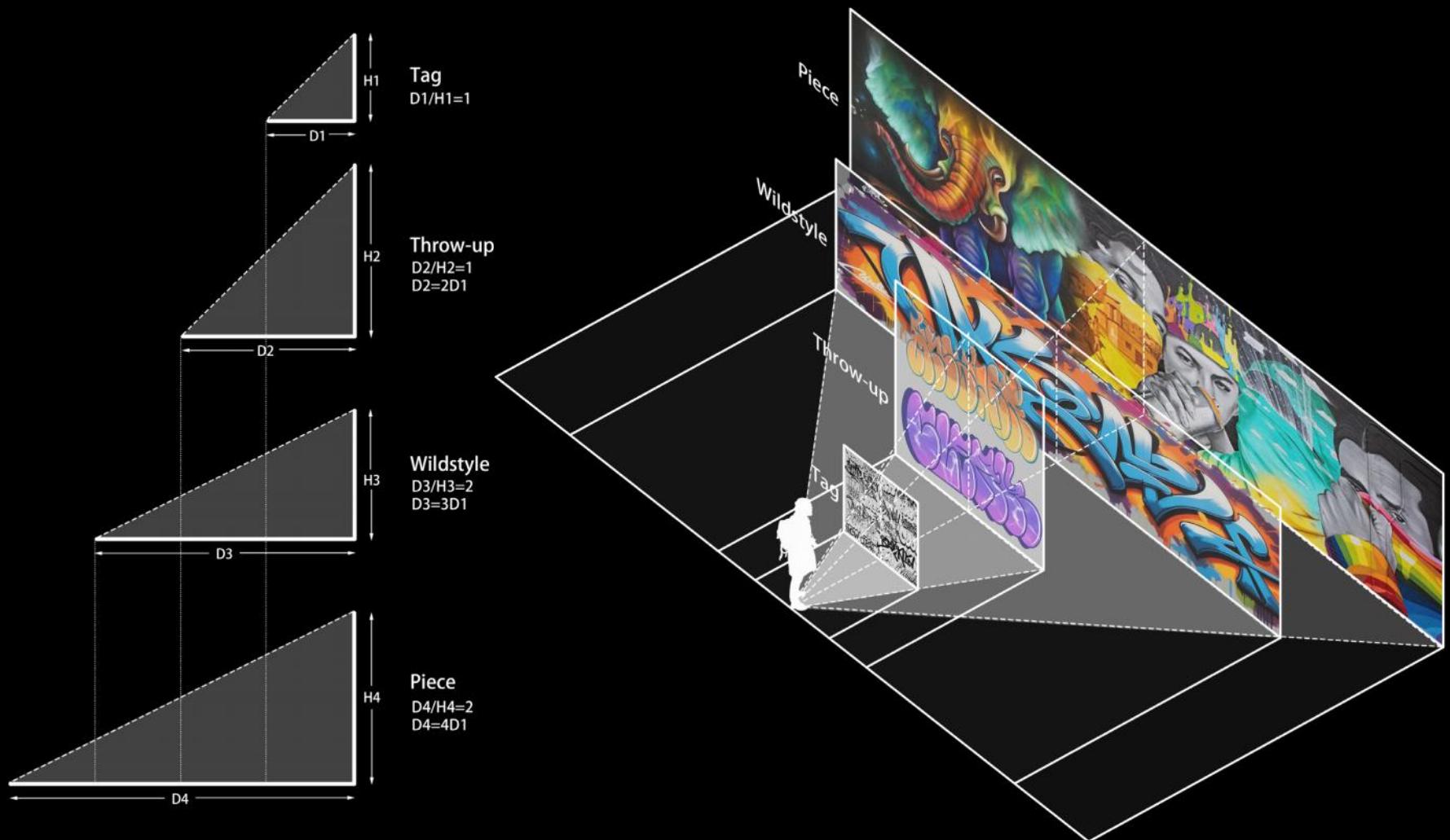
Ratio Determination

Ratio of different graffiti types

The process involves defining a scale by assigning dimensions to different types of graffiti, based on a ratio analysis. For example, tags and throw-ups are allocated a ratio of 1, which establishes their relative scale in the design. In contrast, wildstyle and pieces are assigned a ratio of 2, indicating a larger scale for these more complex forms of graffiti.

These dimensions are then systematically integrated with various functional elements within the design framework. Each graffiti type is matched with specific functions and allocated a designated section accordingly. This approach ensures that the spatial arrangement and functional allocation are harmonized with the distinctive attributes of each

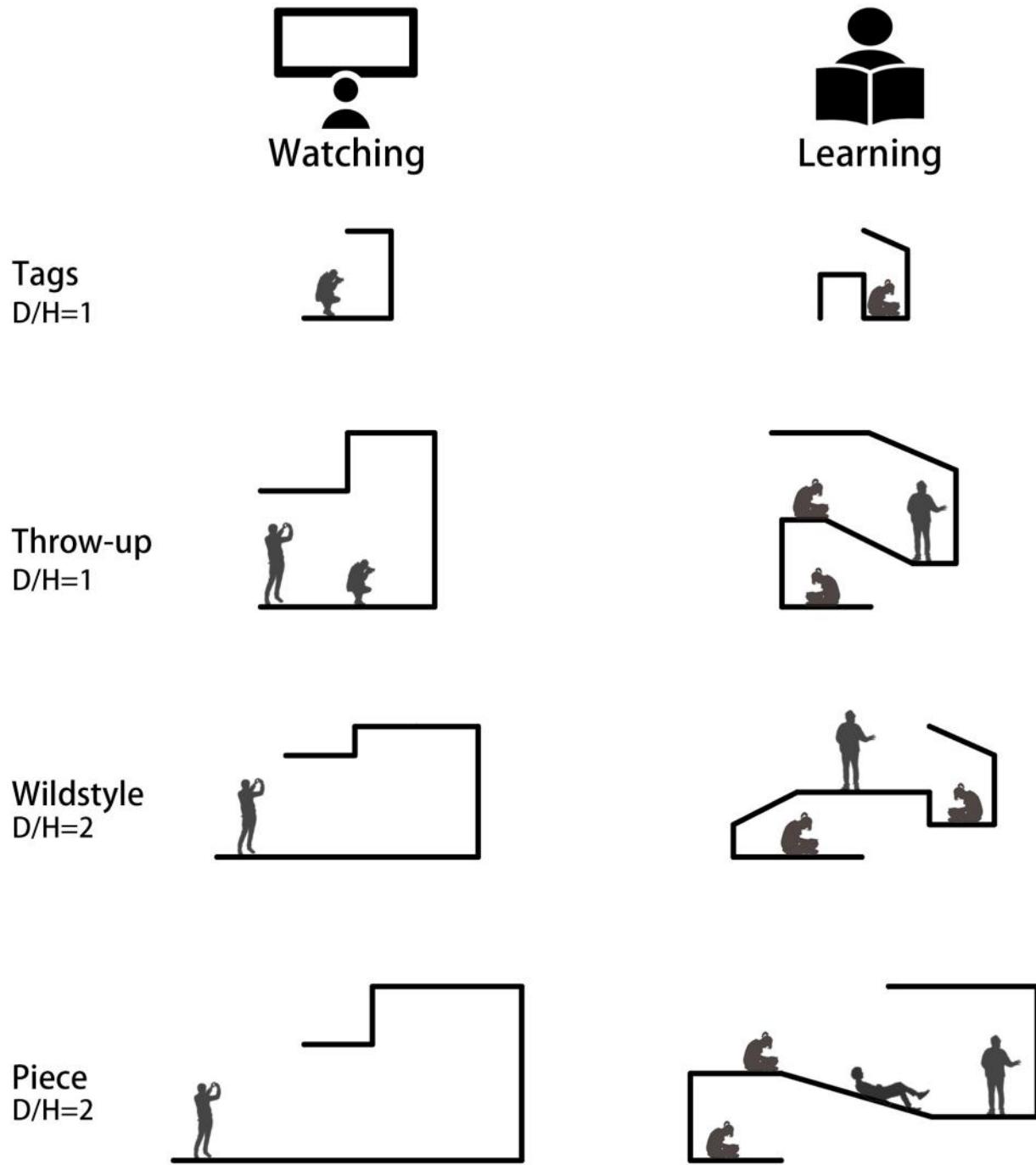
graffiti type. As a result, the design achieves a well-organized structure that reflects both the scale and the functional needs associated with different types of graffiti, creating a cohesive and functional urban space.



Modular Design

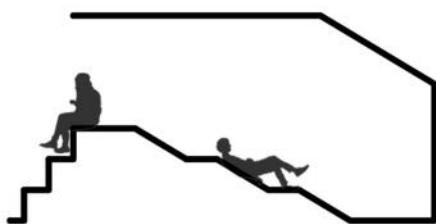
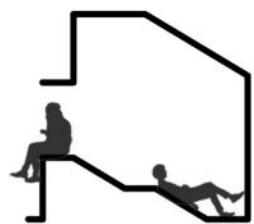
Section design

Building on the logic that combines spatial ratios with graffiti styles and functions, the design process continues by creating spaces tailored to different activities. In addition to the primary function of watching graffiti, four other key activities are incorporated based on the needs of the community: learning, resting, shopping, and playing. Each of these functions is integrated into the overall design, ensuring that the space not only highlights the graffiti itself but also supports a diverse range of experiences for visitors. By addressing these various functional needs, the space becomes a multi-dimensional environment that caters to both the artistic and everyday requirements of the community.

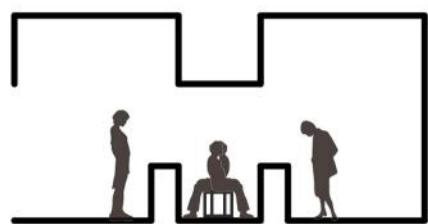
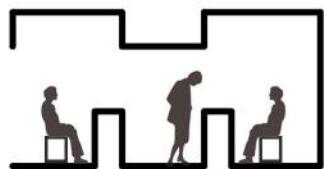
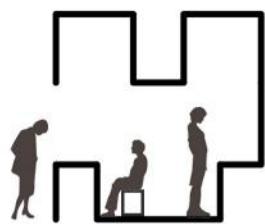




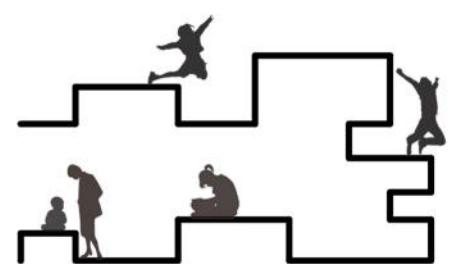
Resting



Shopping



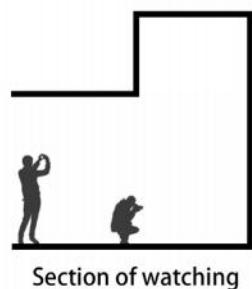
Playing



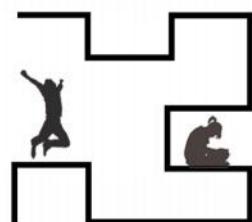
Modular Design

Method 01

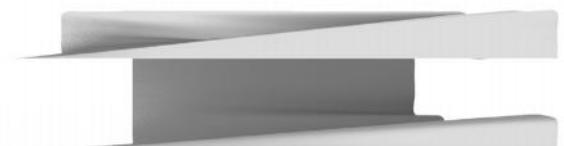
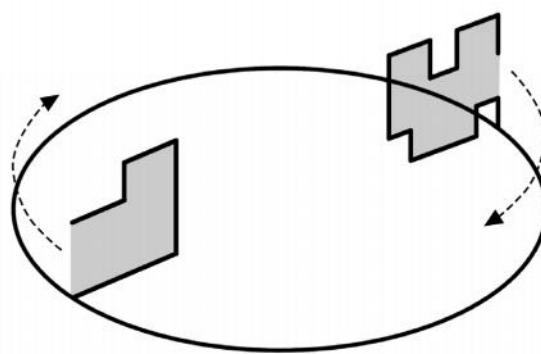
Combination of Sections ————— Sweeping ————— Modeling



Section of watching



Section of other functions



Different functional sections are created by designing each function in combination with a specific graffiti style according to varying spaces ratios. By merging sections that share the same ratio but serve different

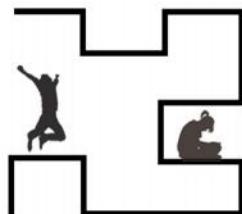
functions, distinct design modules are formed. The primary focus is on combining the watching function, which is essential for graffiti, with any other selected function. This approach emphasizes the importance

of viewing graffiti while integrating additional activities within the same space. The resulting design modules ensure that the graffiti remains a central element, while also accommodating other functions

Modular Design

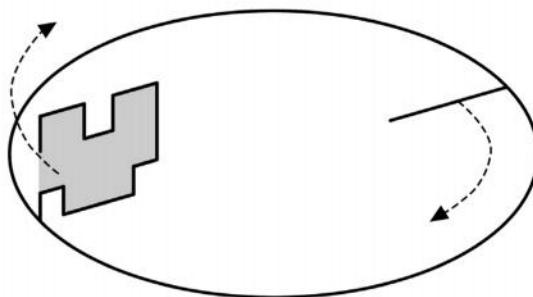
Method 02

Combination of Sections



Section of each functions

Sweeping



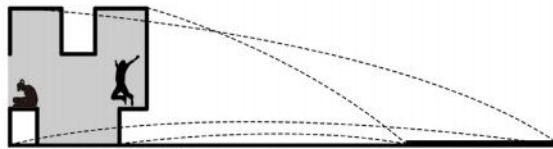
Modeling



+

—

Ground



The second approach to module combination involves connecting individual functional sections directly to the ground. Unlike the first method, which focuses on integrating multiple functions within a single module,

this approach emphasizes the distinct functionality of each module. Each module is designed to serve a single purpose and features a direct connection to the ground, allowing people to easily access the interior

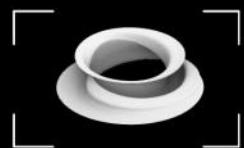
from the outside. This design highlights the individual function of each module, creating a more focused and accessible space where users can engage with the specific activity housed within.

Modular Design

Method 01



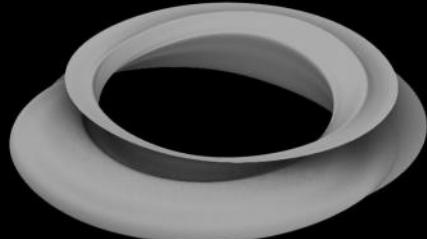
Tags
D/H=1



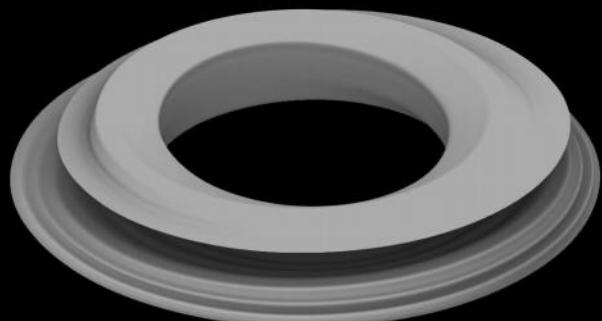
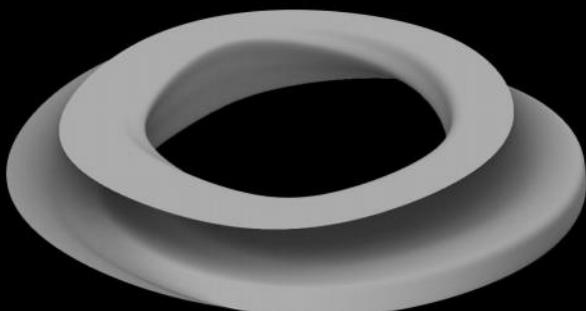
Throw-up
D/H=1



Wildstyle
D/H=2



Piece
D/H=2

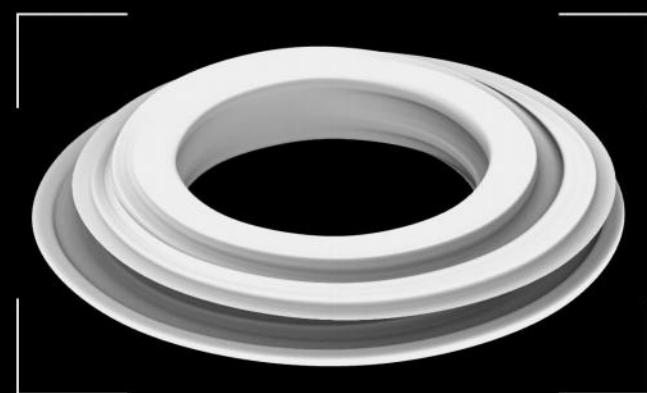
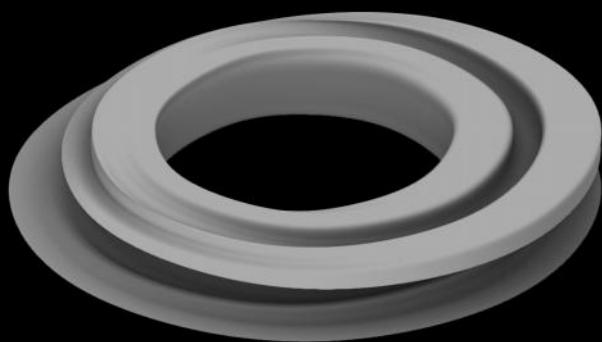
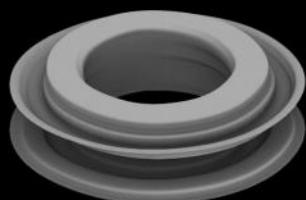
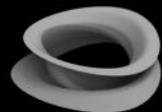




Shopping



Playing



Modular Design

Method 02

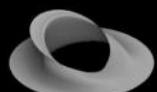


Watching

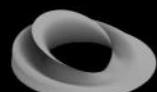


Learning

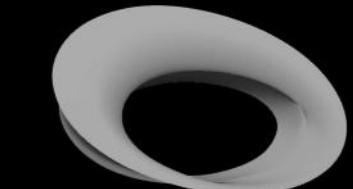
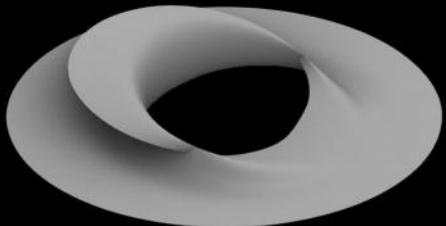
Tags
D/H=1



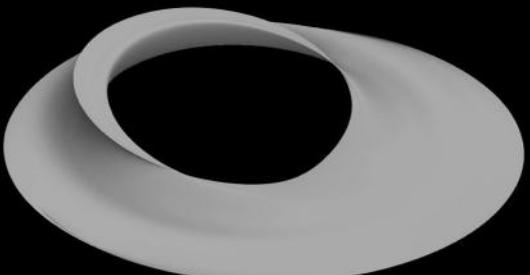
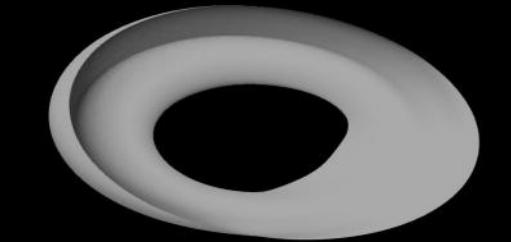
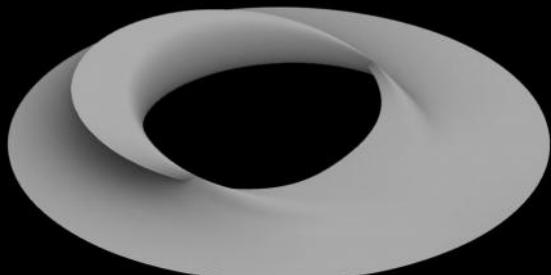
Throw-up
D/H=1



Wildstyle
D/H=2



Piece
D/H=2





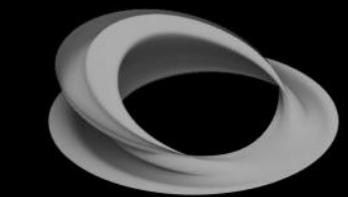
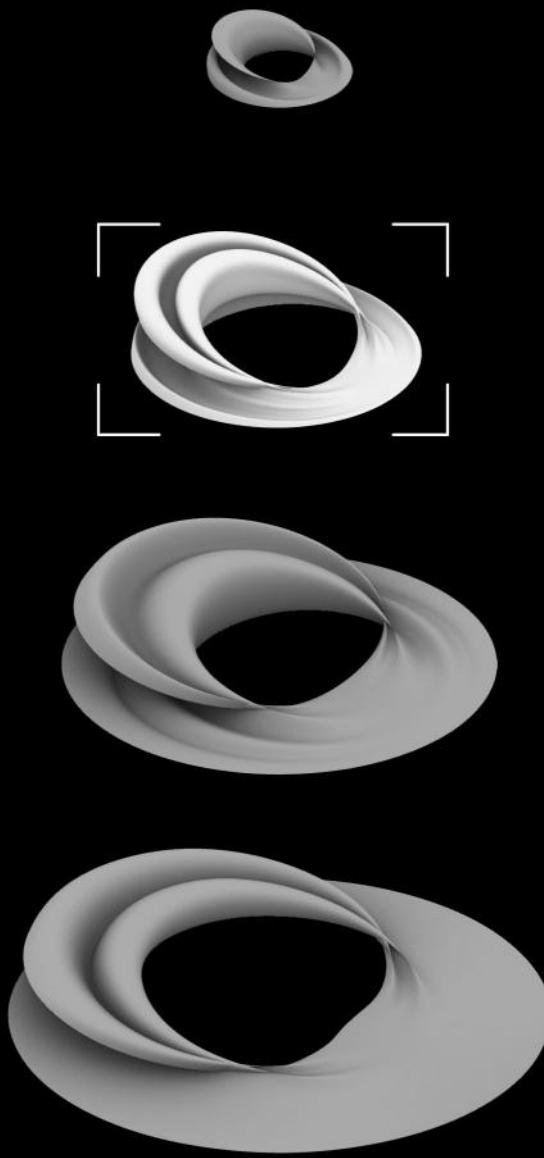
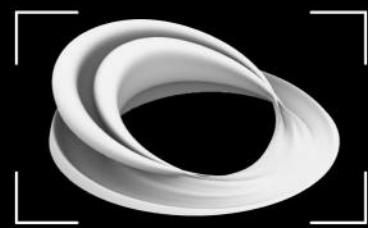
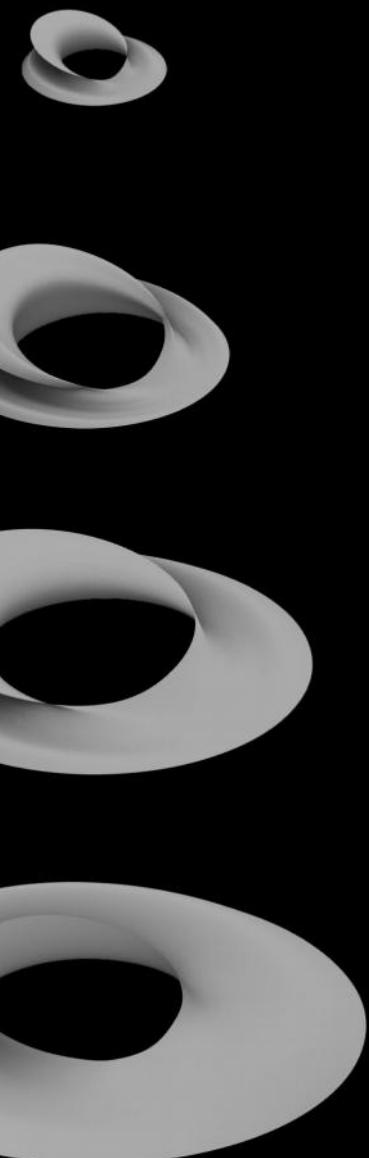
Resting



Shopping



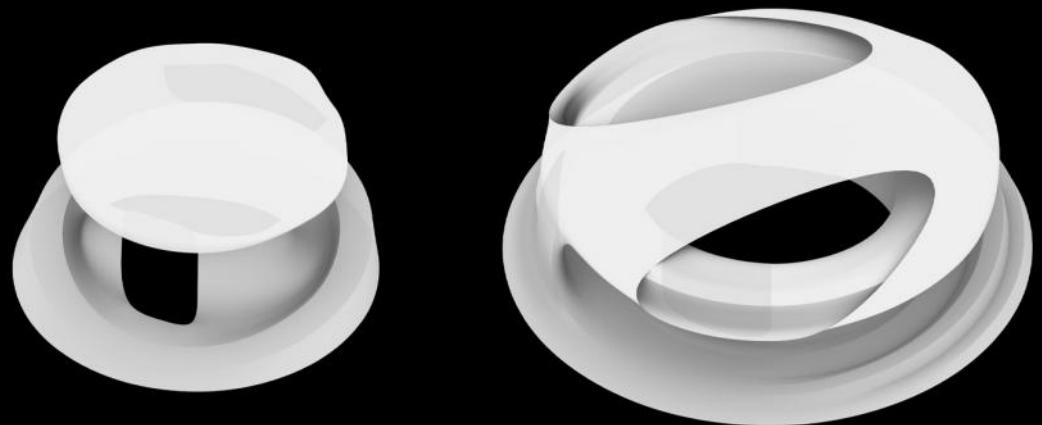
Playing



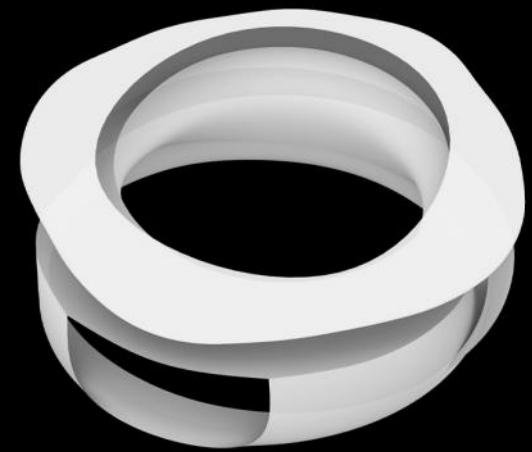
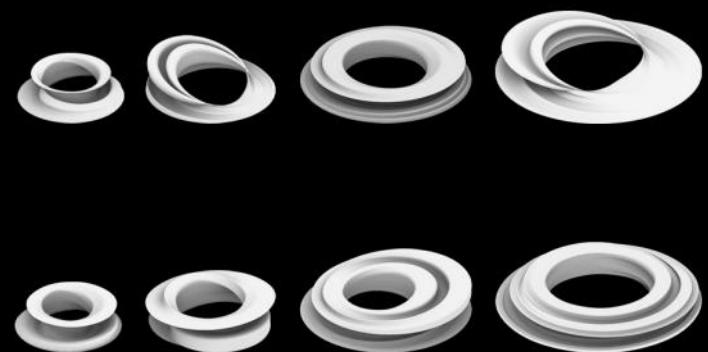
Modular Design

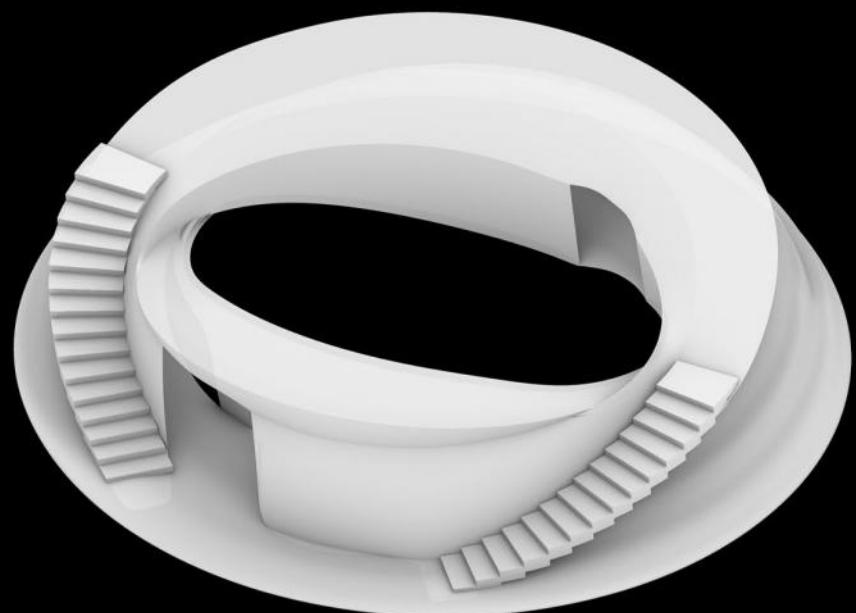
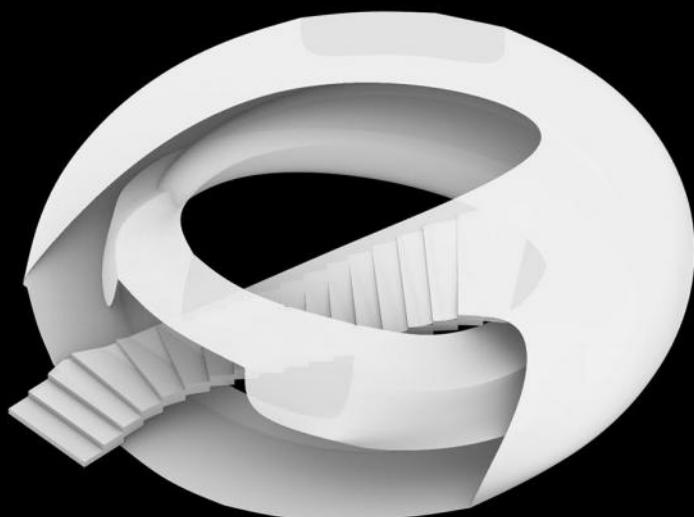
Module refinement

Refined Modules



Selected Modules





Modular Design

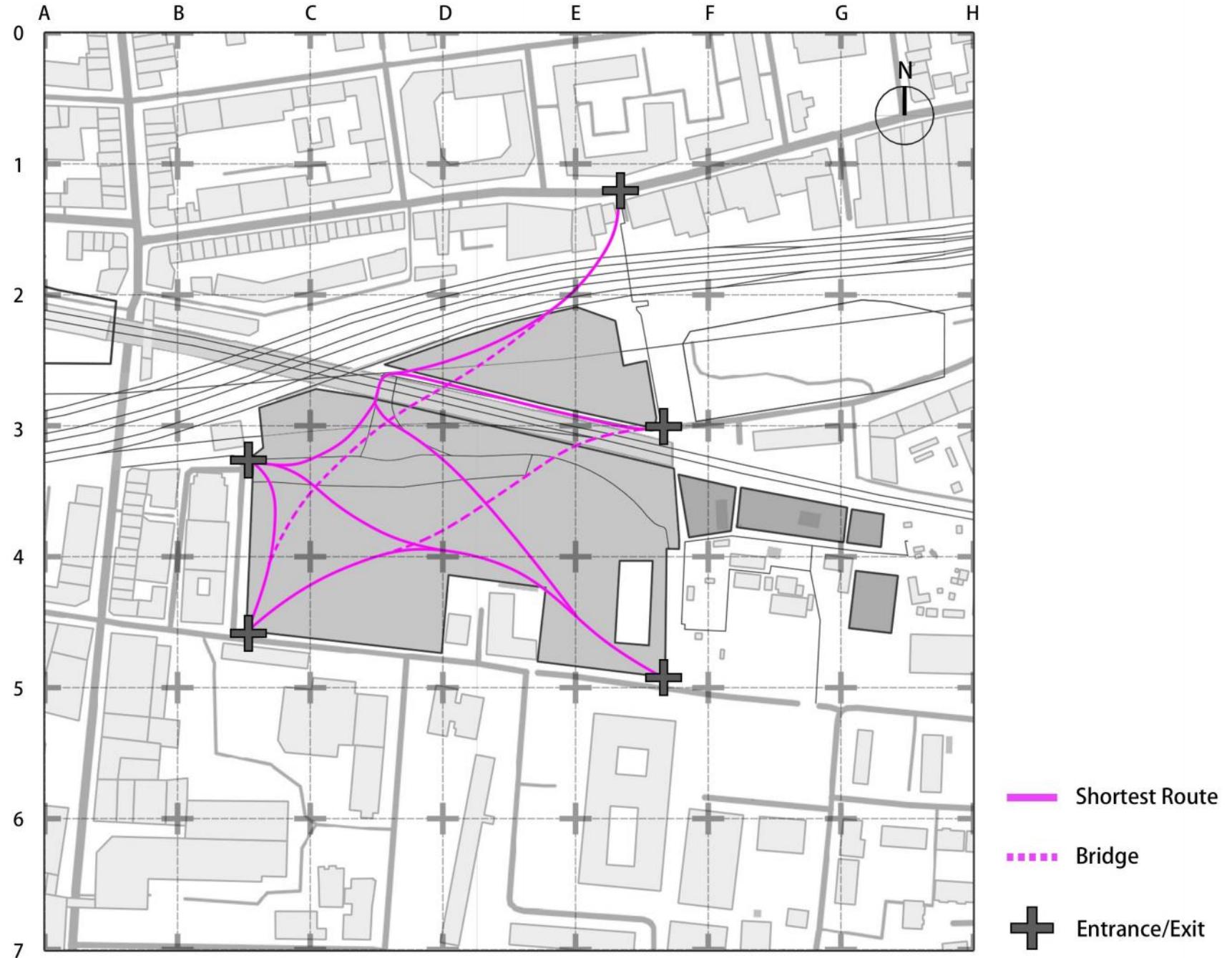
3D prints





Route Design

Shortest route between entrances and exits



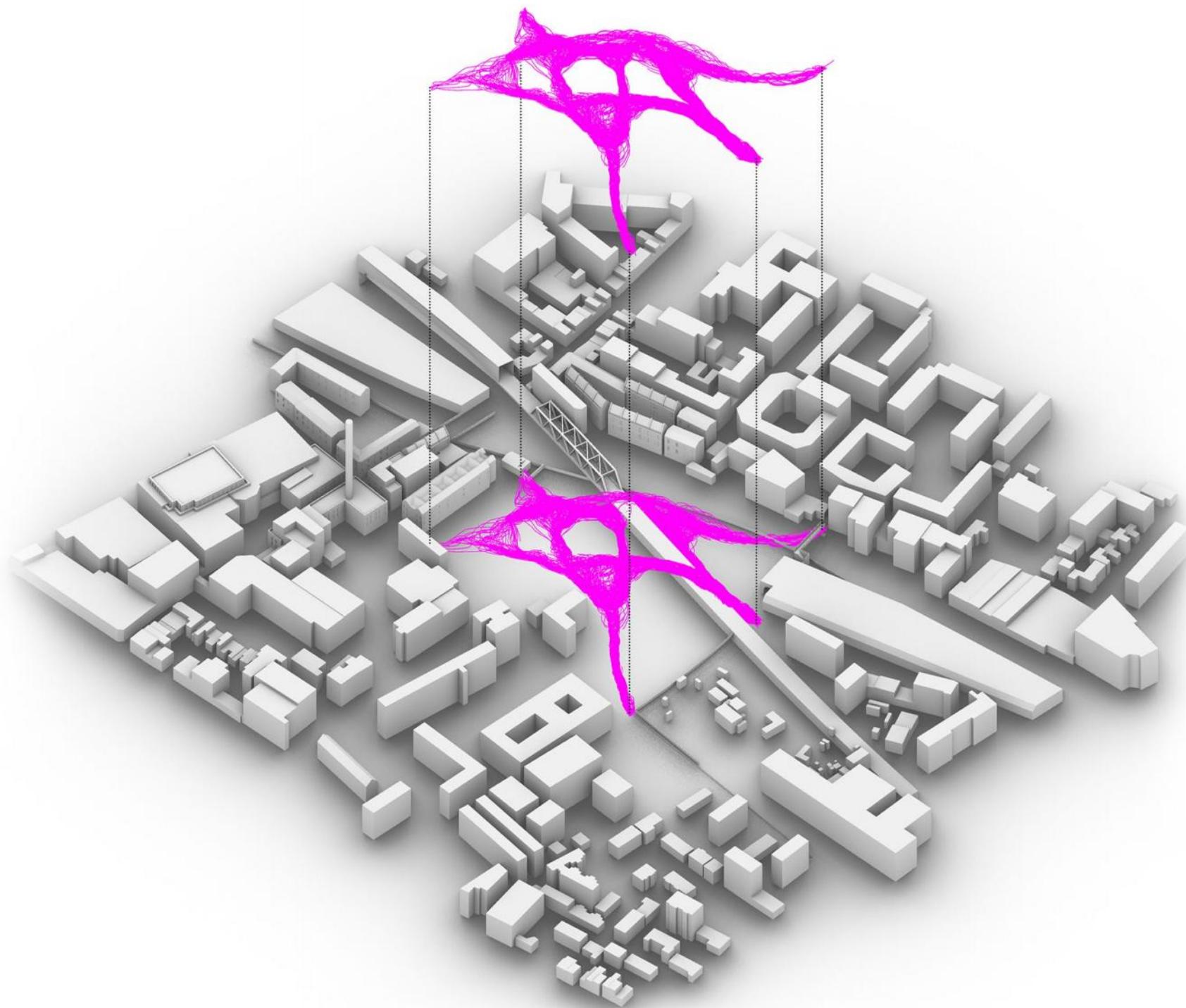
Route Design

Pedestrian flow simulation



Route Design

Pedestrian flow simulation

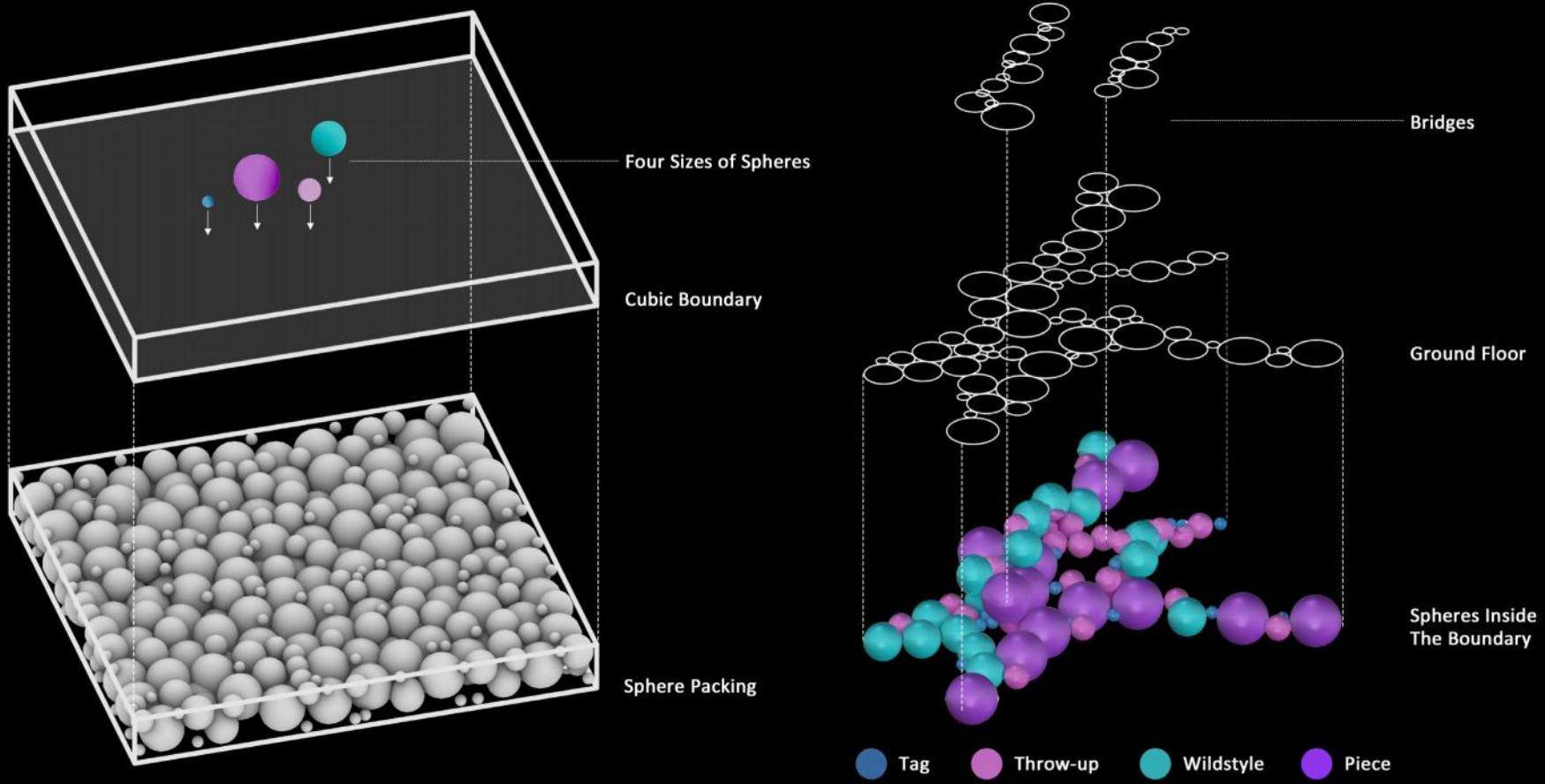


Sphere Packing Theorem

Arrangement of the units

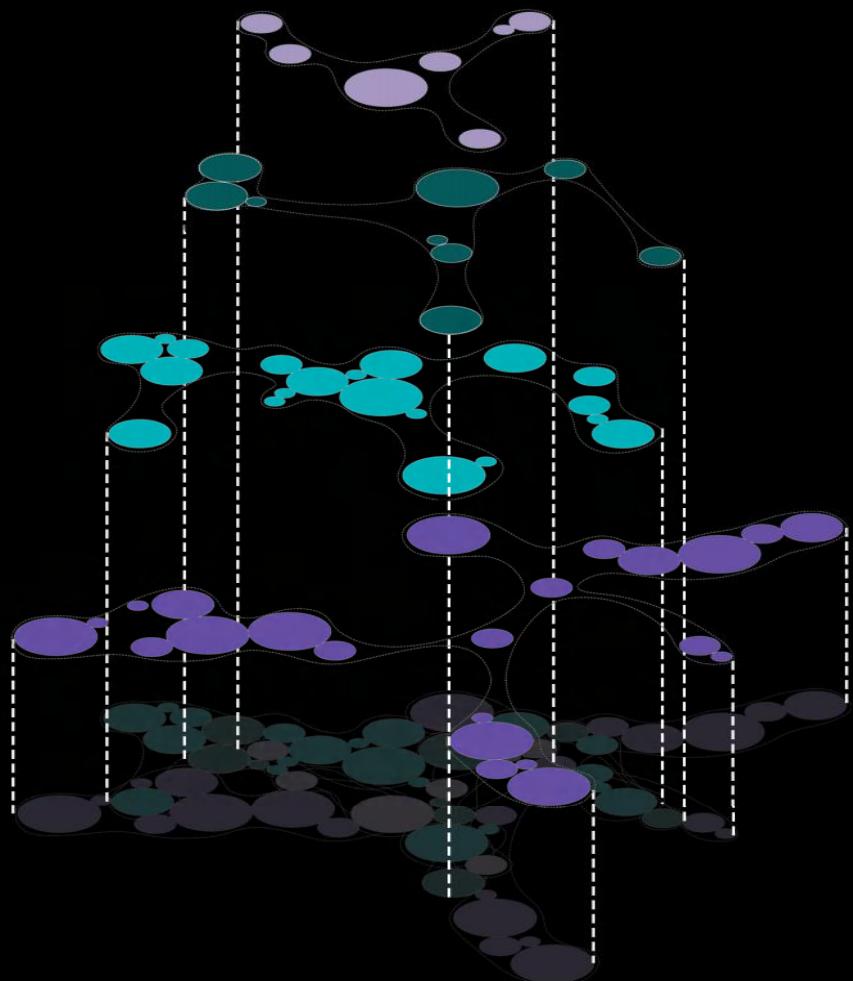
Using a packing logic, four different sizes of spheres are combined, with each sphere representing a distinct D to H ratio that corresponds to various graffiti types. After defining the spheres, they are extracted from the boundary, and those that align with the previously established routes are designated as bridges. Each sphere not only corresponds to a

specific graffiti type but also serves a unique function, such as playing, shopping, resting, or learning. The resulting diagram illustrates how these functions are integrated with one another, as well as the routes for viewing graffiti. This approach creates a cohesive spatial experience that seamlessly blends functionality with the appreciation of urban art.

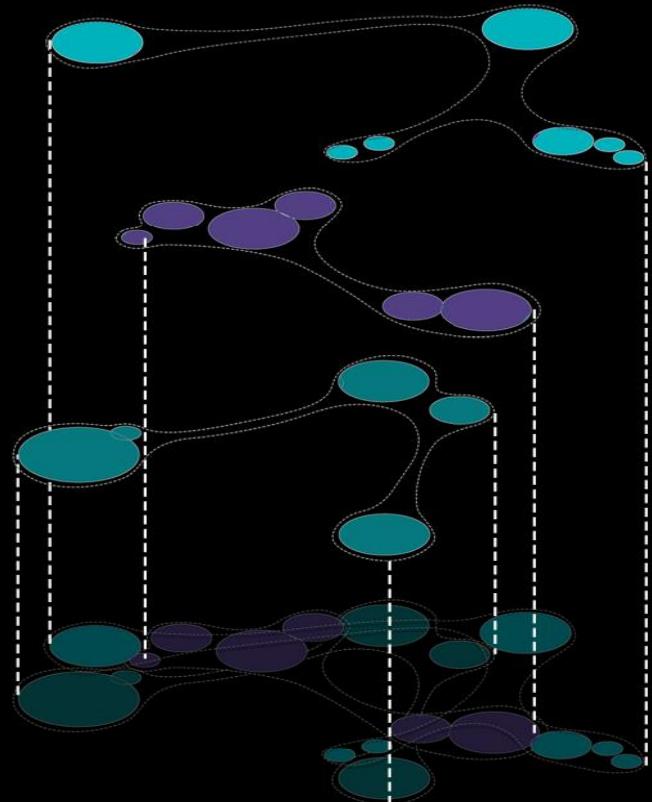


Function Partition

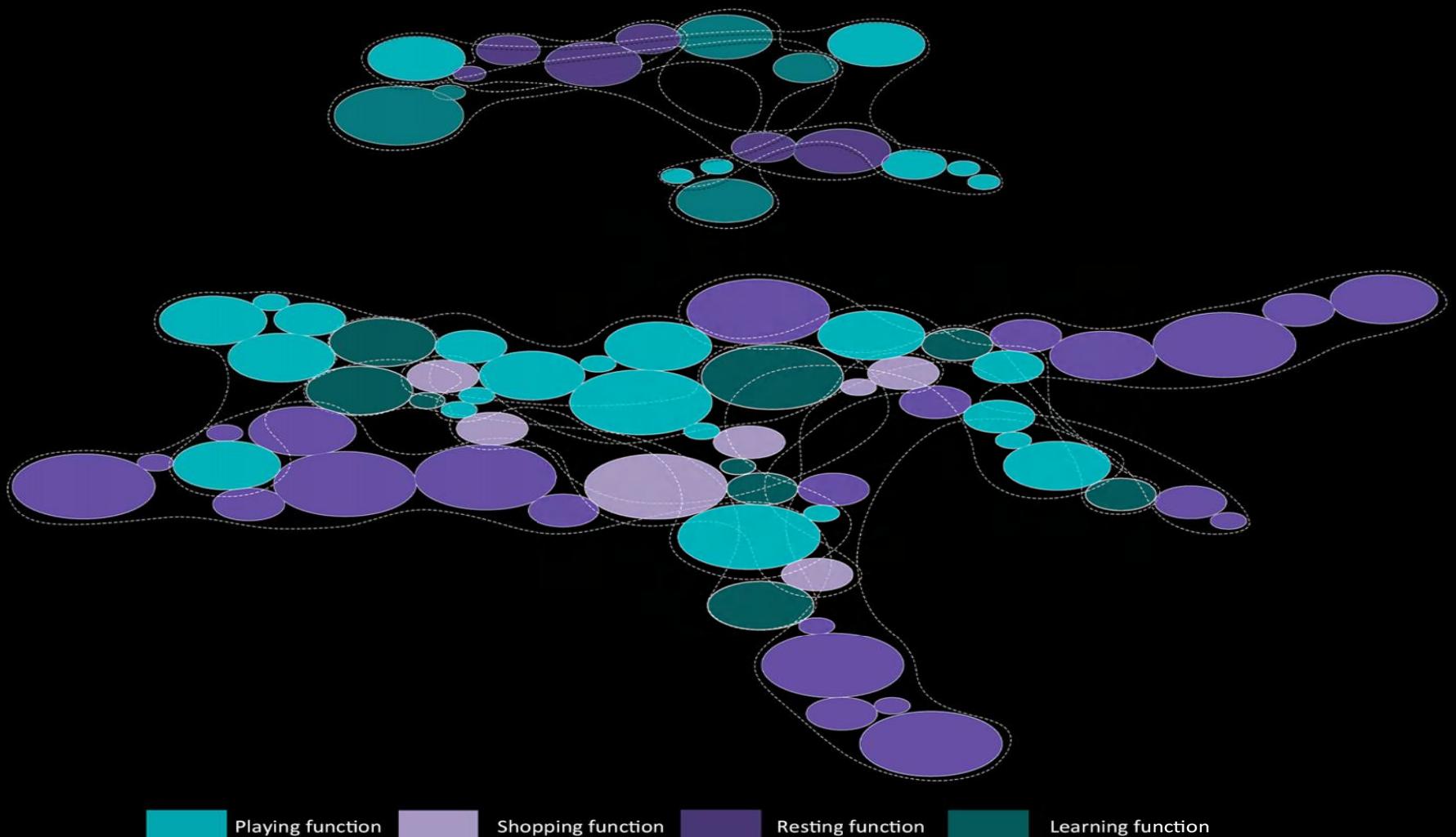
Arrangement of different functional modules



Ground Circle Function



Upper Circle Function



Playing function

Shopping function

Resting function

Learning function

Material Research

Spray concrete

Spray concrete, also known as shotcrete, is a construction technique that involves using specialized equipment to project concrete at high speed onto a surface. The process includes mixing and transporting materials such as cement, sand, fine aggregates, water, and additives, which can be mixed before (dry method) or during (wet method) spraying. The mixture is then propelled by compressed air through a spray gun onto the target surface, where the concrete automatically compacts due to the impact, forming a solid structure without the need for formwork. As the concrete cures and hardens, it creates a high-strength layer. This method is widely used for tunnel reinforcement, slope protection, underground projects, and repairs. Additionally, artists can add dyes to create colored concrete, turning the material itself into a form of graffiti.

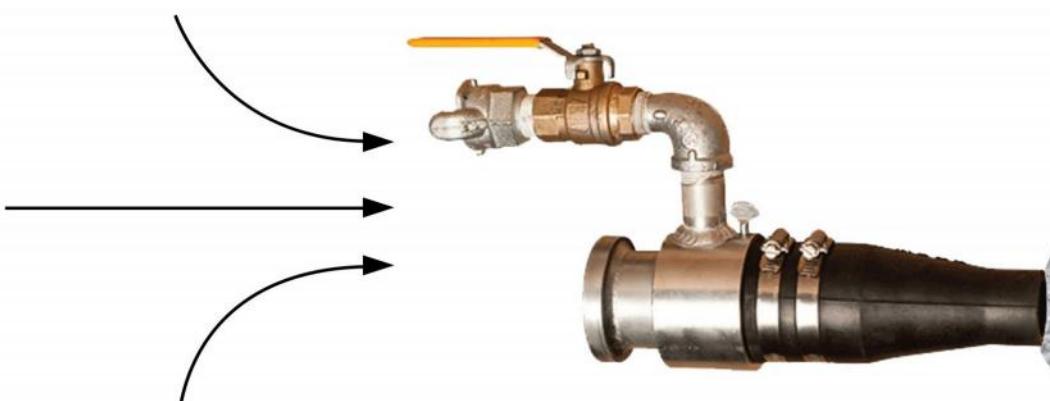




Air Compressor



Pump



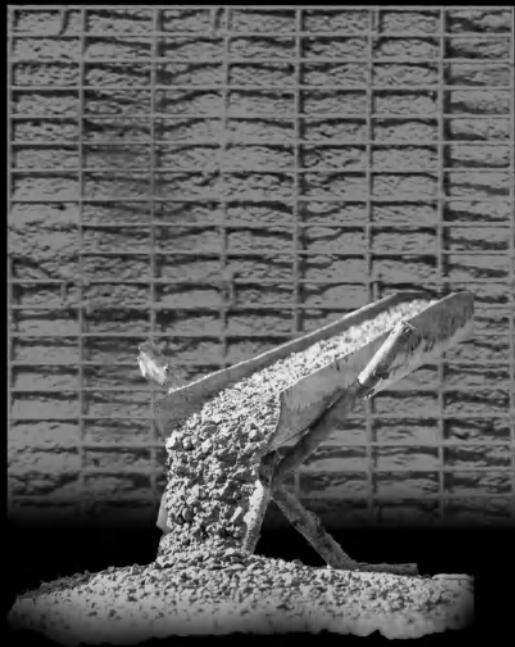
Nozzle



Admixture

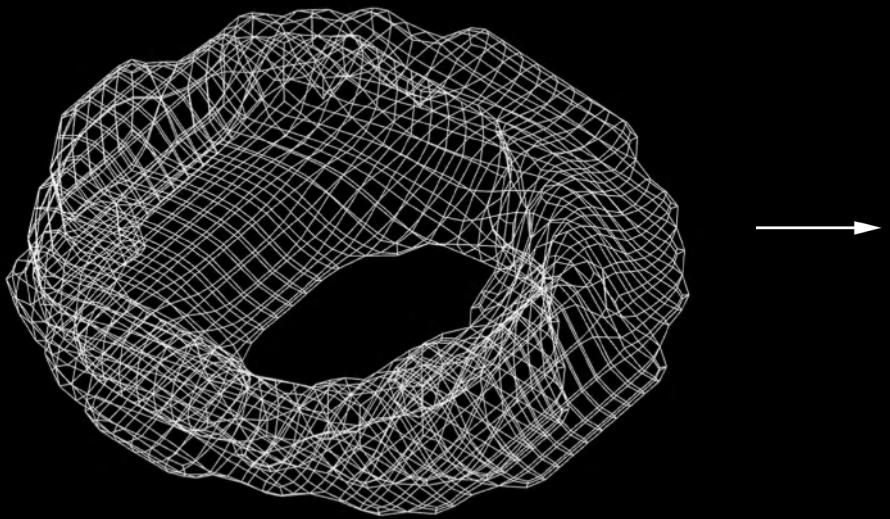
Production Process

Implementation principles of spray concrete



Material collection

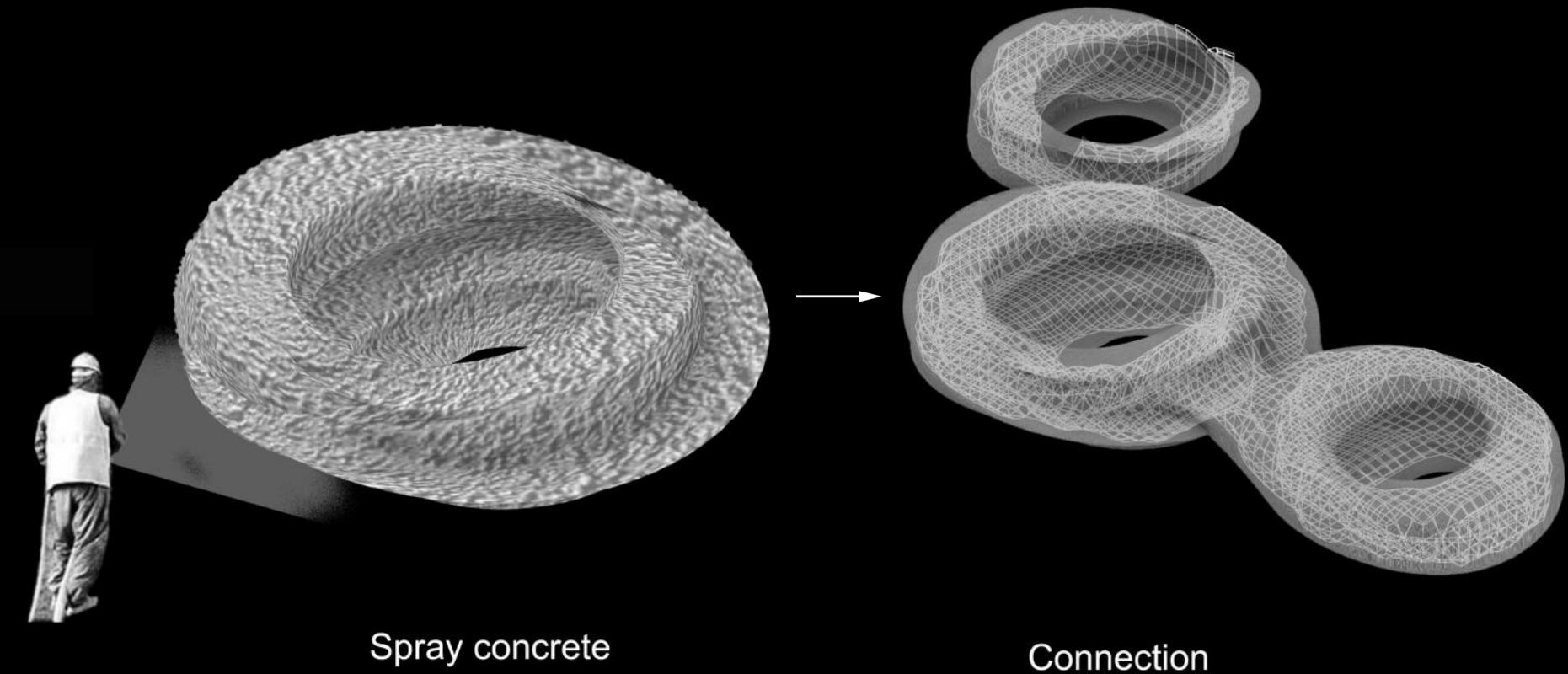
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Support Frame

Choosing the suitable type of cement, sand, fine aggregates, and additives, and accurately determining their proportions, ensures that the spray concrete achieves the desired strength and performance.

The supporting structure is developed based on the module design, providing the necessary framework for spray concrete application. This preparation includes constructing structural elements that support and shape the spray concrete, ensuring stability and proper adhesion during the spraying process.



Spray concrete

Artists can engage in the spray concrete process to create three-dimensional graffiti. By directly participating in the application, they can shape and mold the concrete to produce intricate and sculptural artwork. This approach transforms traditional graffiti into a more dynamic and textured form.

Connection

The characteristics of spray concrete are utilized to connect the modules. By applying spray concrete, the modules are seamlessly integrated, forming a cohesive structure. The spray concrete not only serves as a bonding agent but also contributes to the aesthetic and functional unity of the entire assembly.

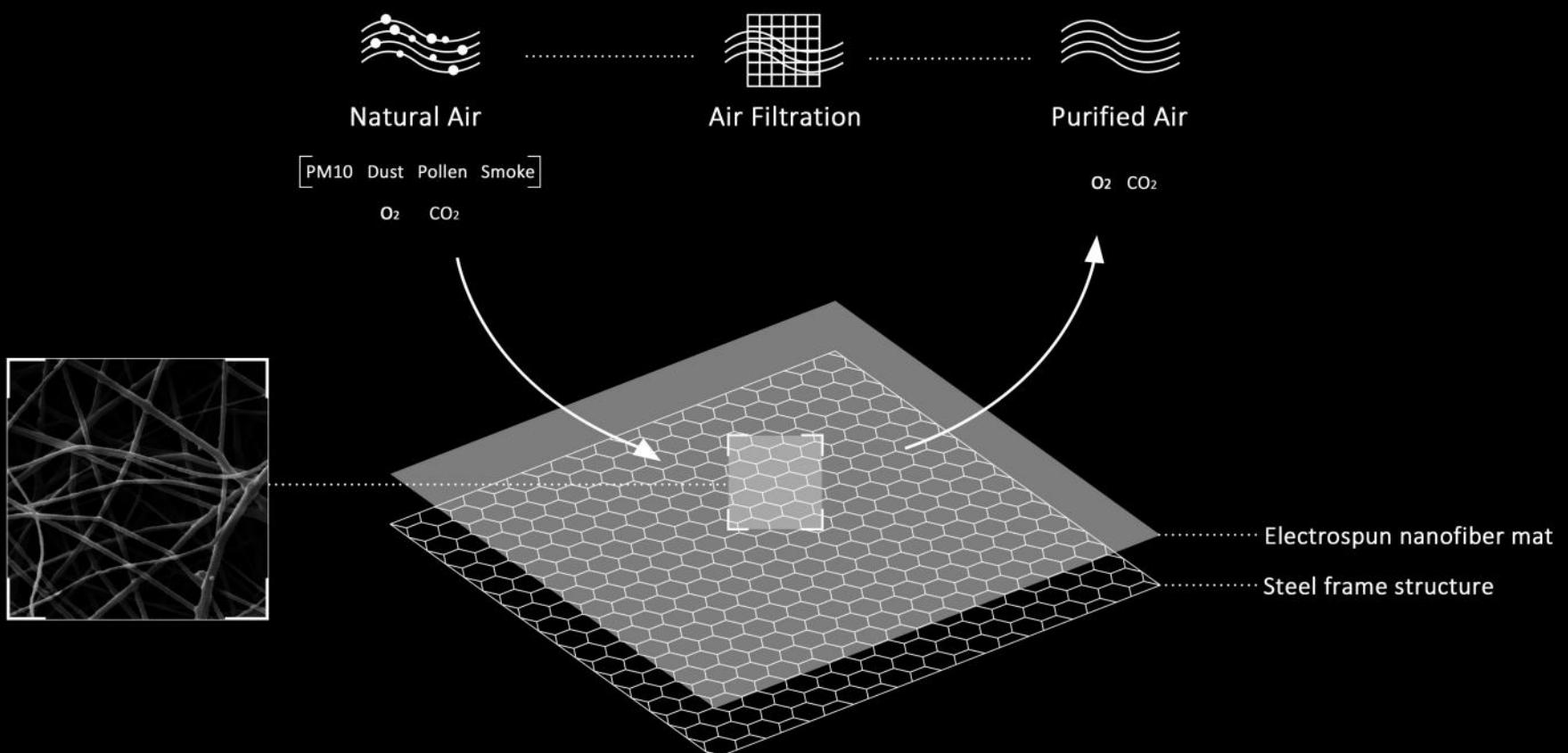
Material Research

Air Purification Material

The steel frame structure of the model is specifically designed to accommodate the integration of electrospun nanofiber mats, which serve as an advanced air purification material. These mats possess a high surface area and porosity, allowing

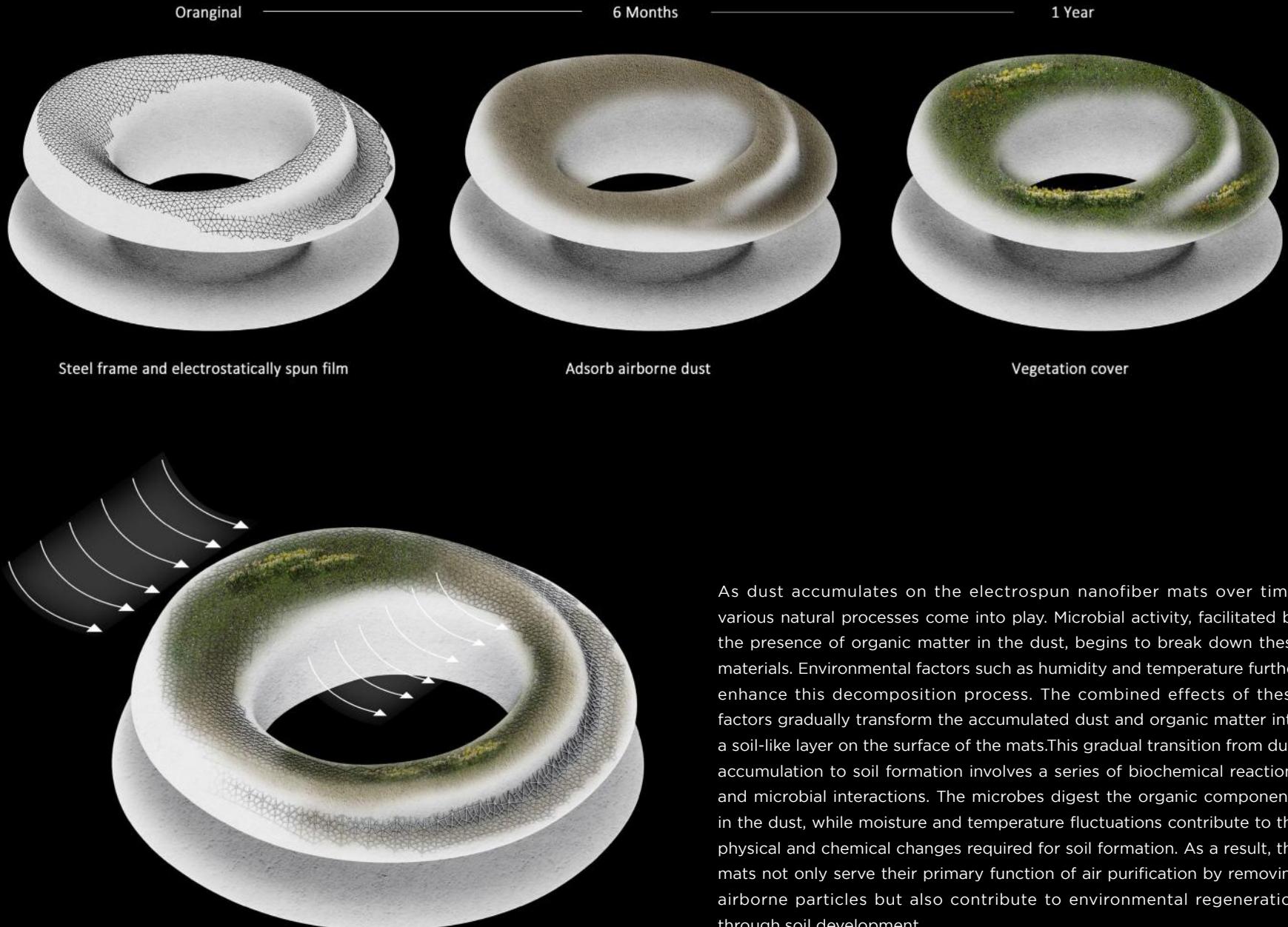
them to efficiently absorb and trap airborne dust particles. By capturing dust, including fine particles that carry organic matter and minerals, the mats help to significantly improve air quality. The robust steel frame provides a stable and durable foundation,

ensuring that the mats are securely positioned to maximize their effectiveness in filtering the air and maintaining a clean environment around the structure.



Material Research

Air Purification Material



Plant Research

Possible plantings in roof dust-absorbing materials

When analyzing the suitability of plants for placement on top of the modules, two main factors must be considered: soil depth and light conditions. The first factor is the depth of soil on the frame. Due to the grid structure, the soil is relatively shallow, ranging

from 15 to 30 cm. This requires the selection of plants that are drought-tolerant, have shallow root systems, and can thrive in poor soils. The second factor to consider is the availability of light in different areas. For areas that receive ample sunlight,

choose heliophytes, which thrive in open, well-lit environments. In contrast, for areas with limited sunlight throughout the year, it is essential to select shade-tolerant plants that can grow in low-light.

Heliophytes



Dianthus deltoides



Coreopsis verticillata



Erica carnea



Festuca glauca



Dianthus spp.



Verbena spp.

Shade-tolerant plants



Convallaria majalis



Lonicera japonica



Ajuga reptans



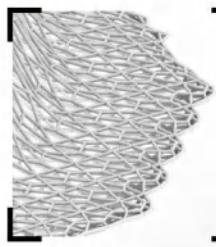
*Athyrium niponicum
var. pictum*



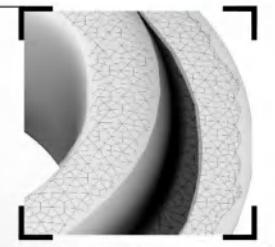
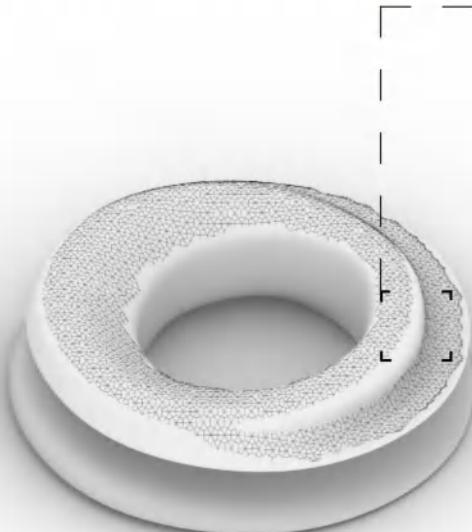
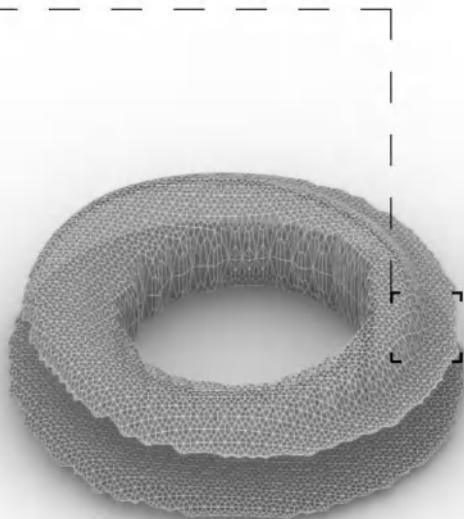
Lamium maculatum



*Lysimachia nummularia
'Aurea'*



Grid thickness



Plant light zones

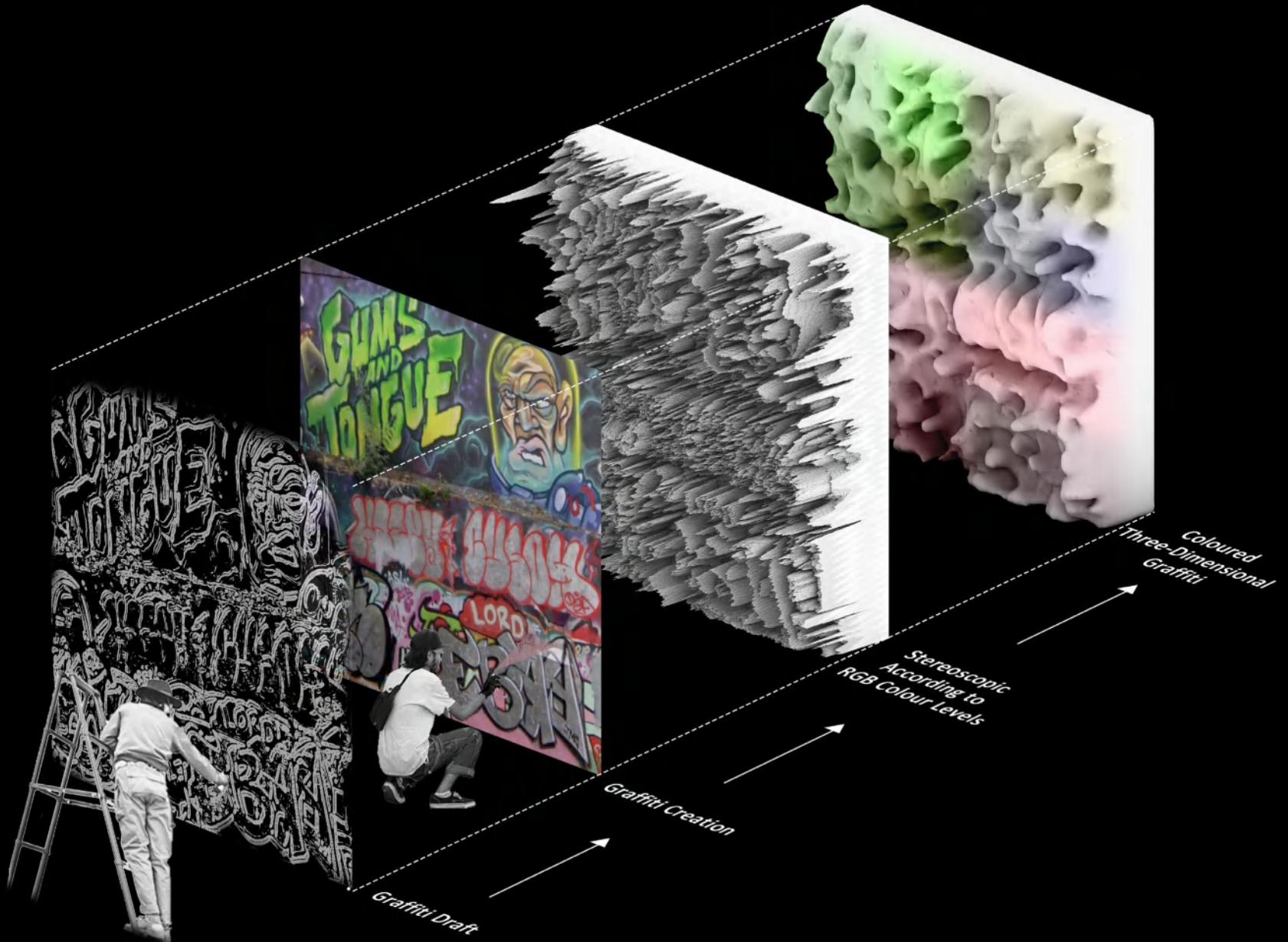
Texture Research

Surface texture created with the participation of graffiti artists

Graffiti designers will play a crucial role in the initial stages of the construction process by converting their two-dimensional graffiti designs into three-dimensional forms. This transformation process,

which involves translating the designs from pixels to voxels, allows for the creation of intricate and detailed three-dimensional representations. These designs are carefully tested and refined to ensure

they accurately reflect the artist's vision when applied to the structure.



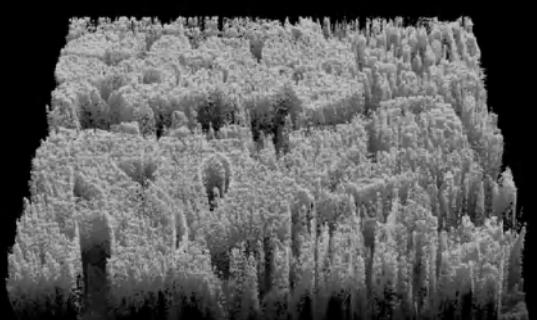
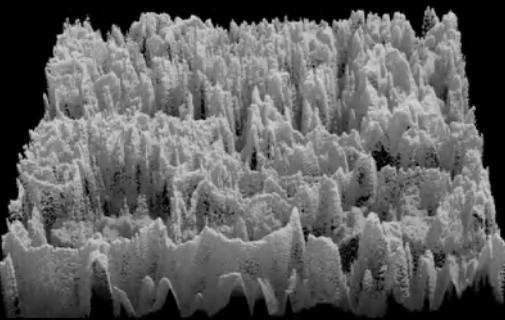
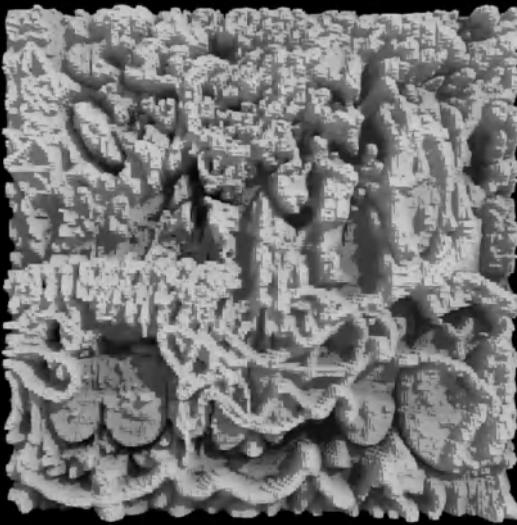
Texture Simulation

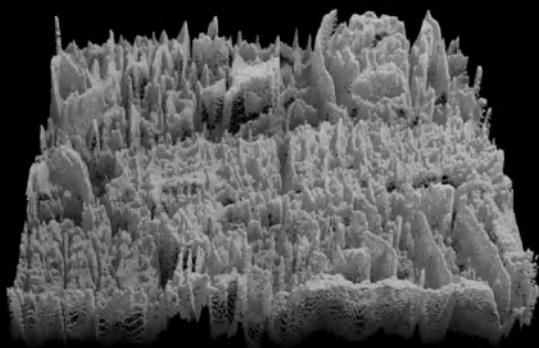
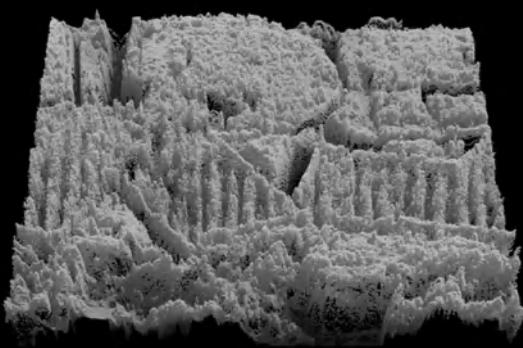
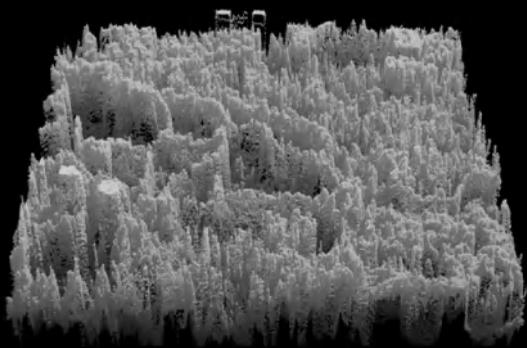
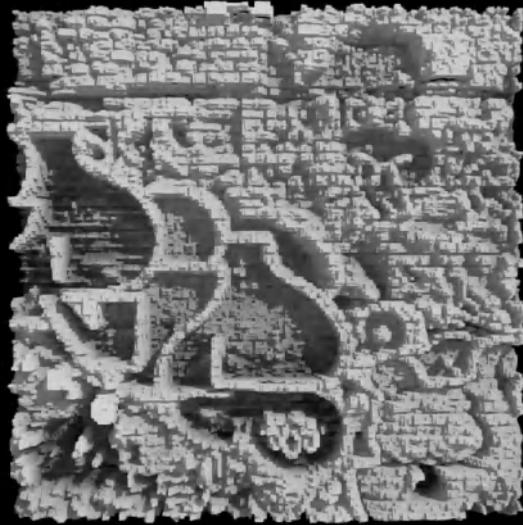
Picture to RGB Model Through Python

Input Images



Output Models





Top: Graffiti Photos
Middle: Top Views of models
Bottom: Perspective Views of models

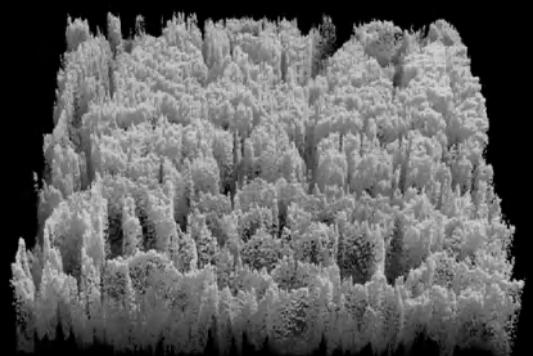
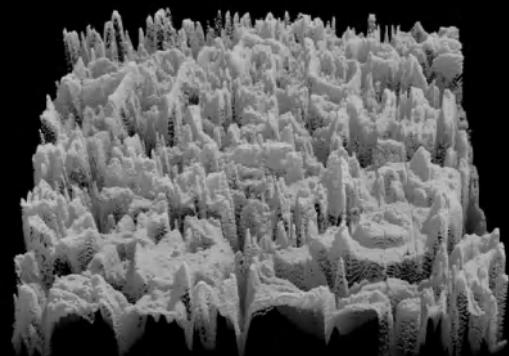
Texture Simulation

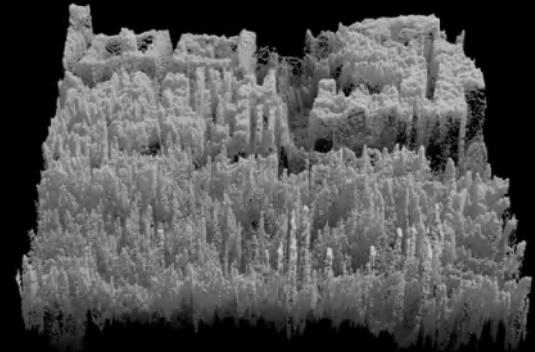
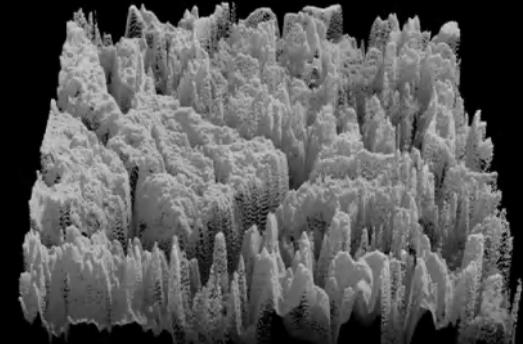
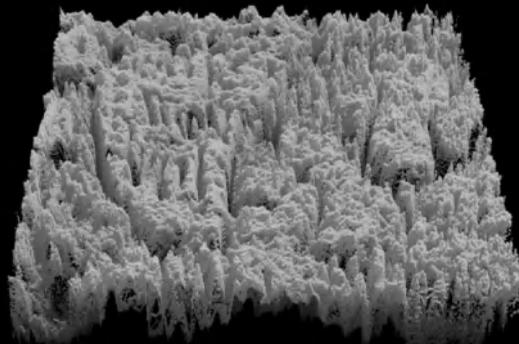
Picture to RGB Model Through Python

Input Images



Output Models





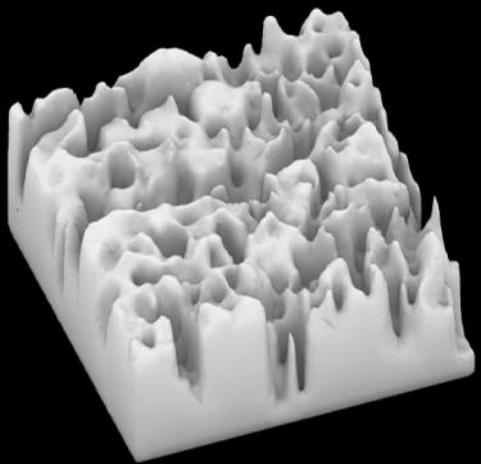
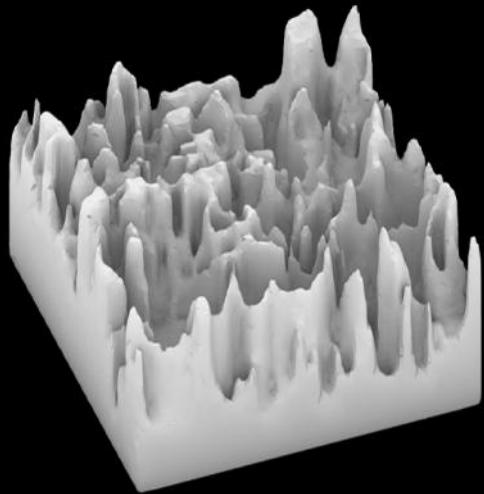
*Top: Graffiti Photos
Middle: Top Views of models
Bottom: Perspective Views of models*

Texture Simulation

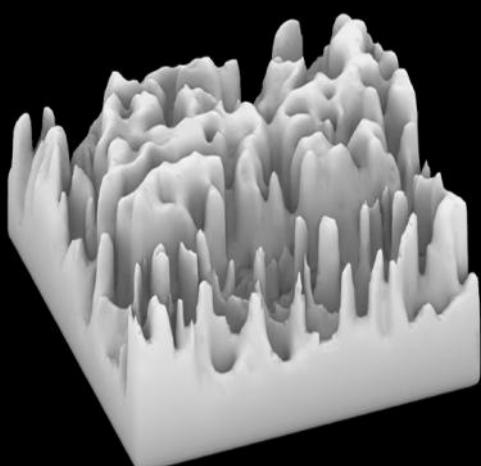
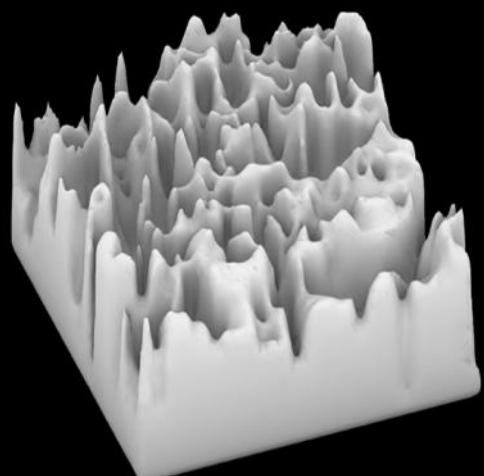
Generate Surface Model from Voxel Model

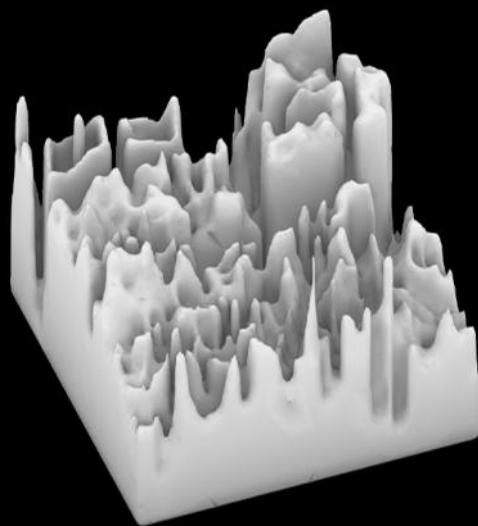
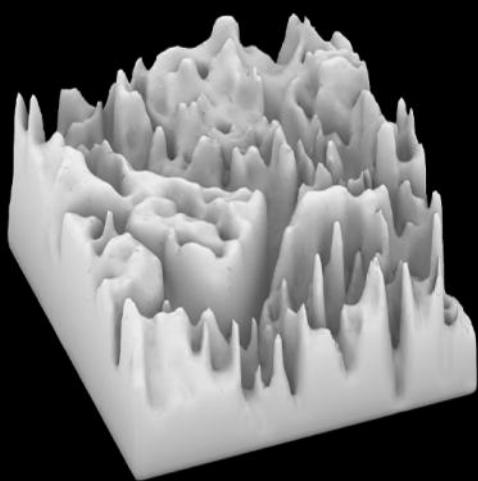
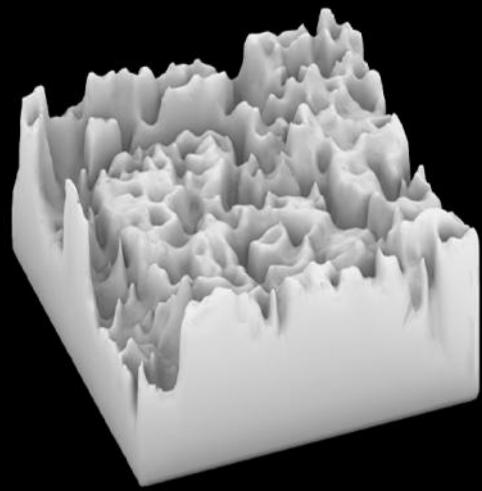
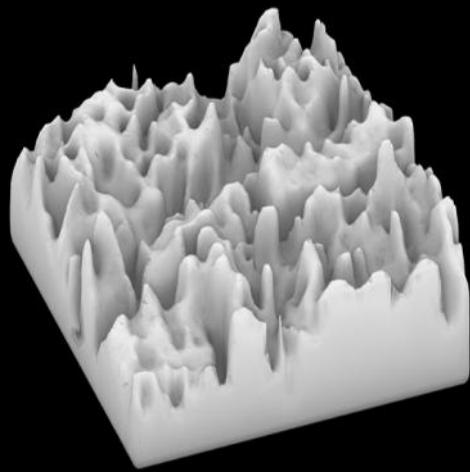
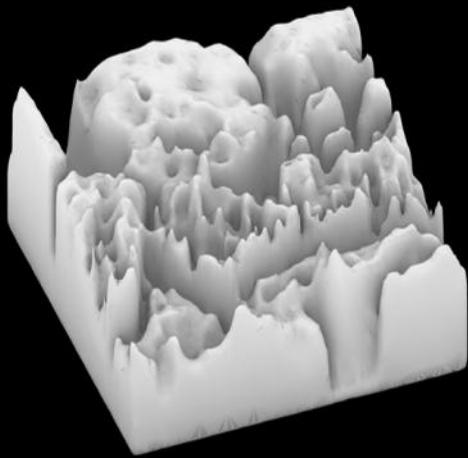
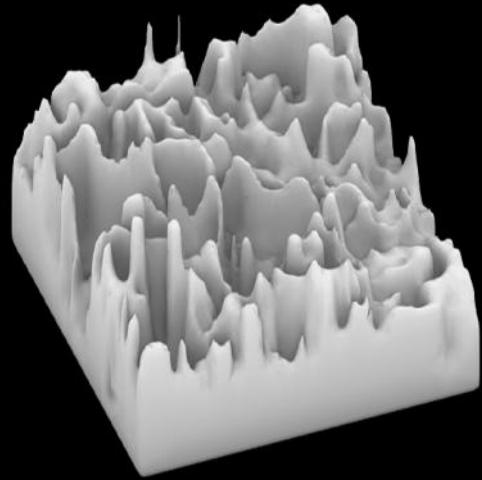
The 3D model generated from the RGB spatial coordinates is a three-dimensional block made up of pixels, so it is put into Rhino and adjusted using Grasshopper to simulate the pixel coordinate ups and downs using surfaces to generate a surface model.

Output Surface Models



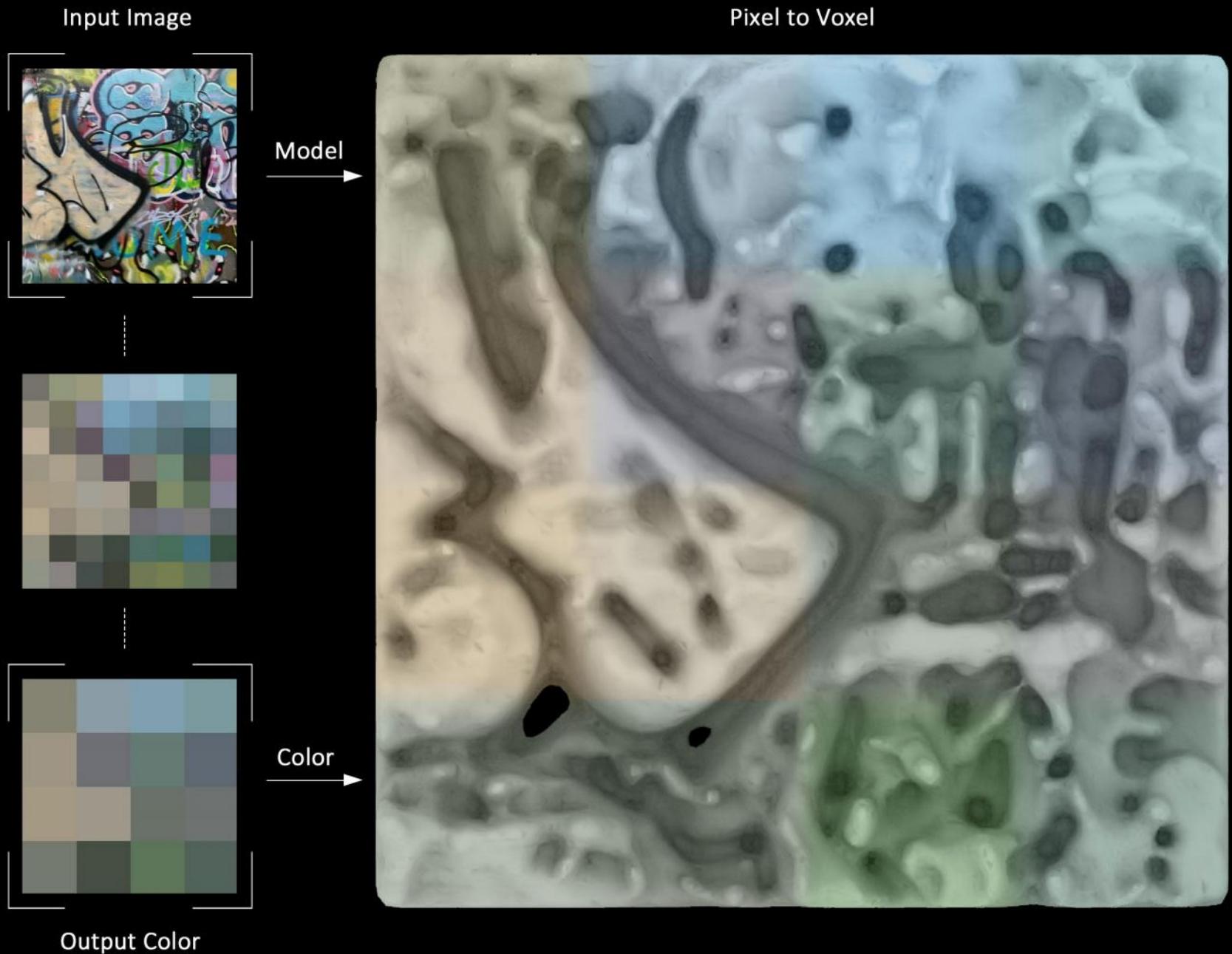
Input Voxel Model





Texture Simulation

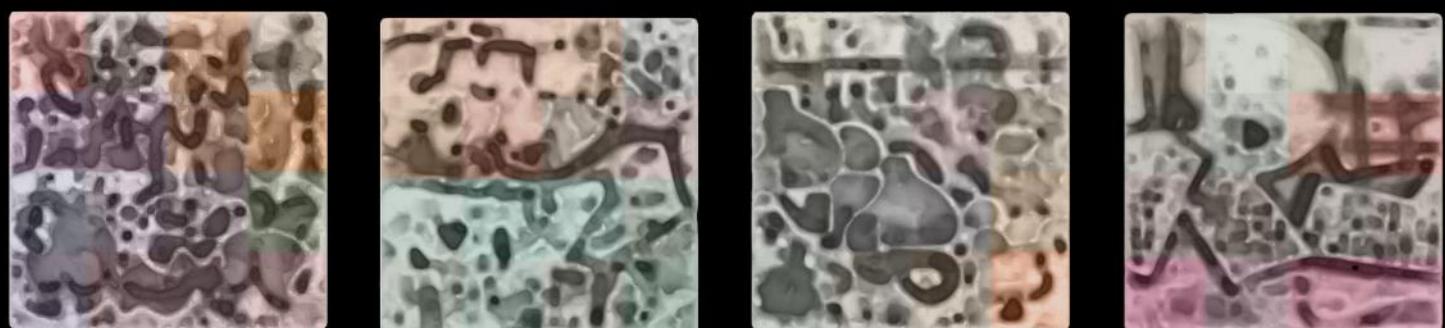
Color research



Input Image



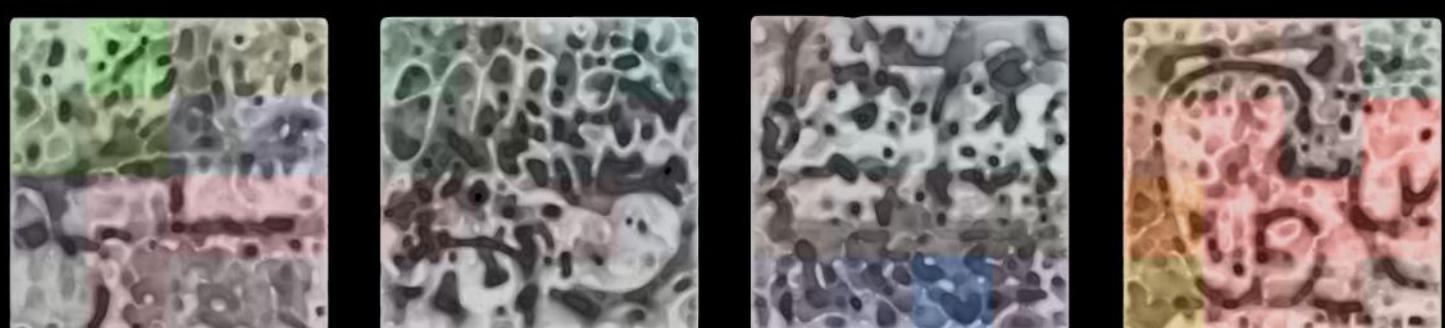
Output Colored Texture



Input Image

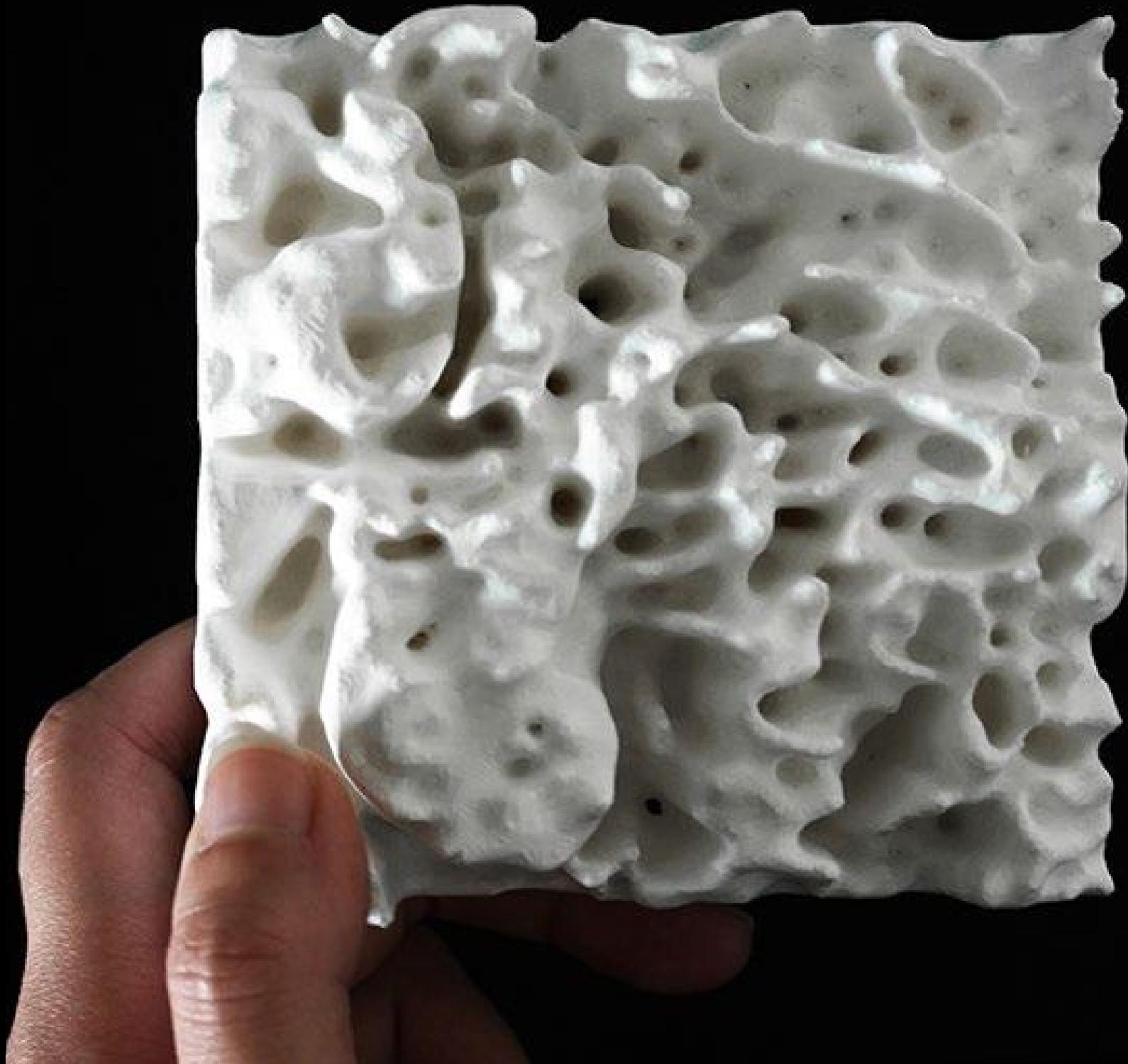


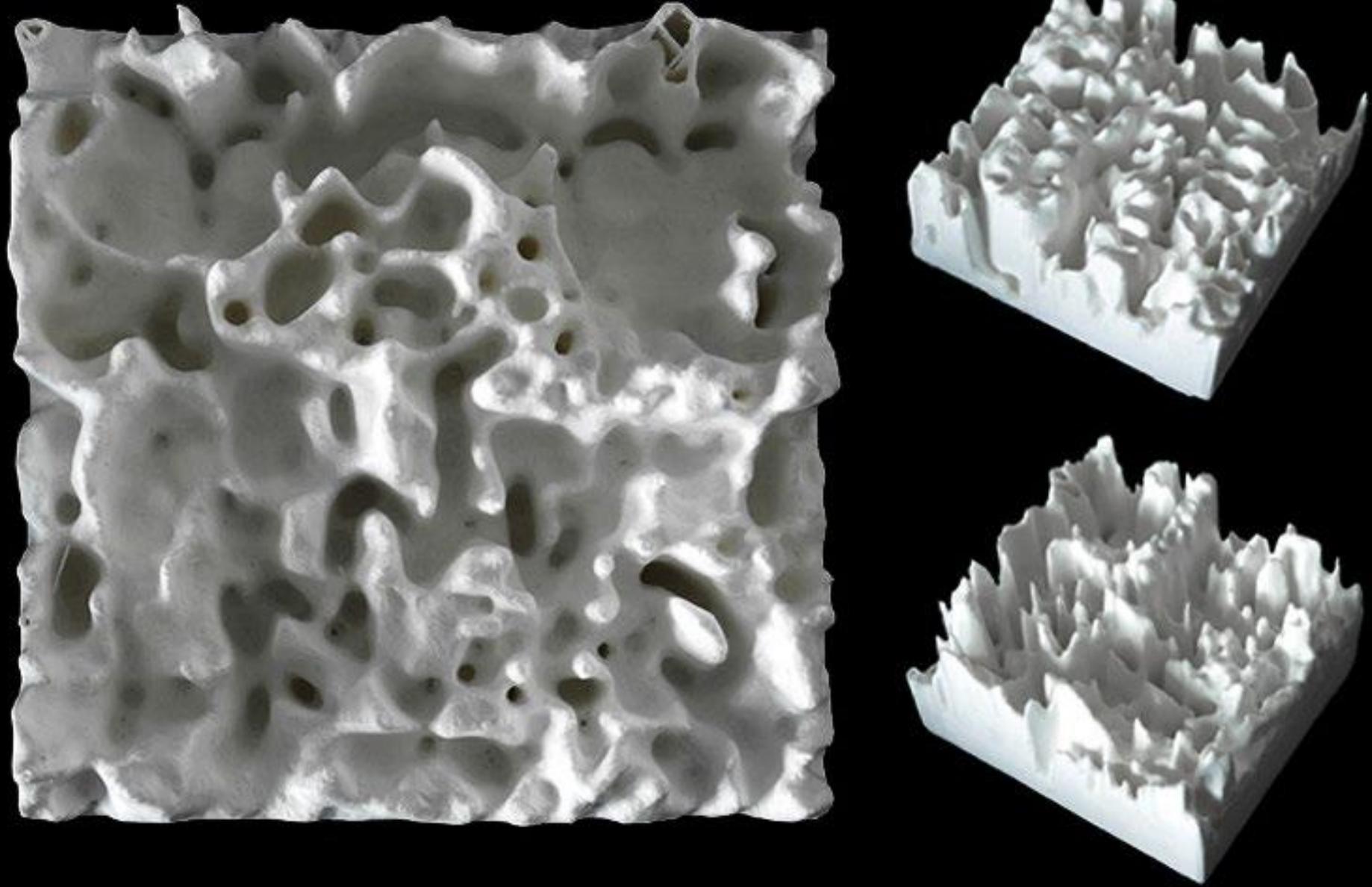
Output Colored Texture



3D Printing Model

Simulated texture model

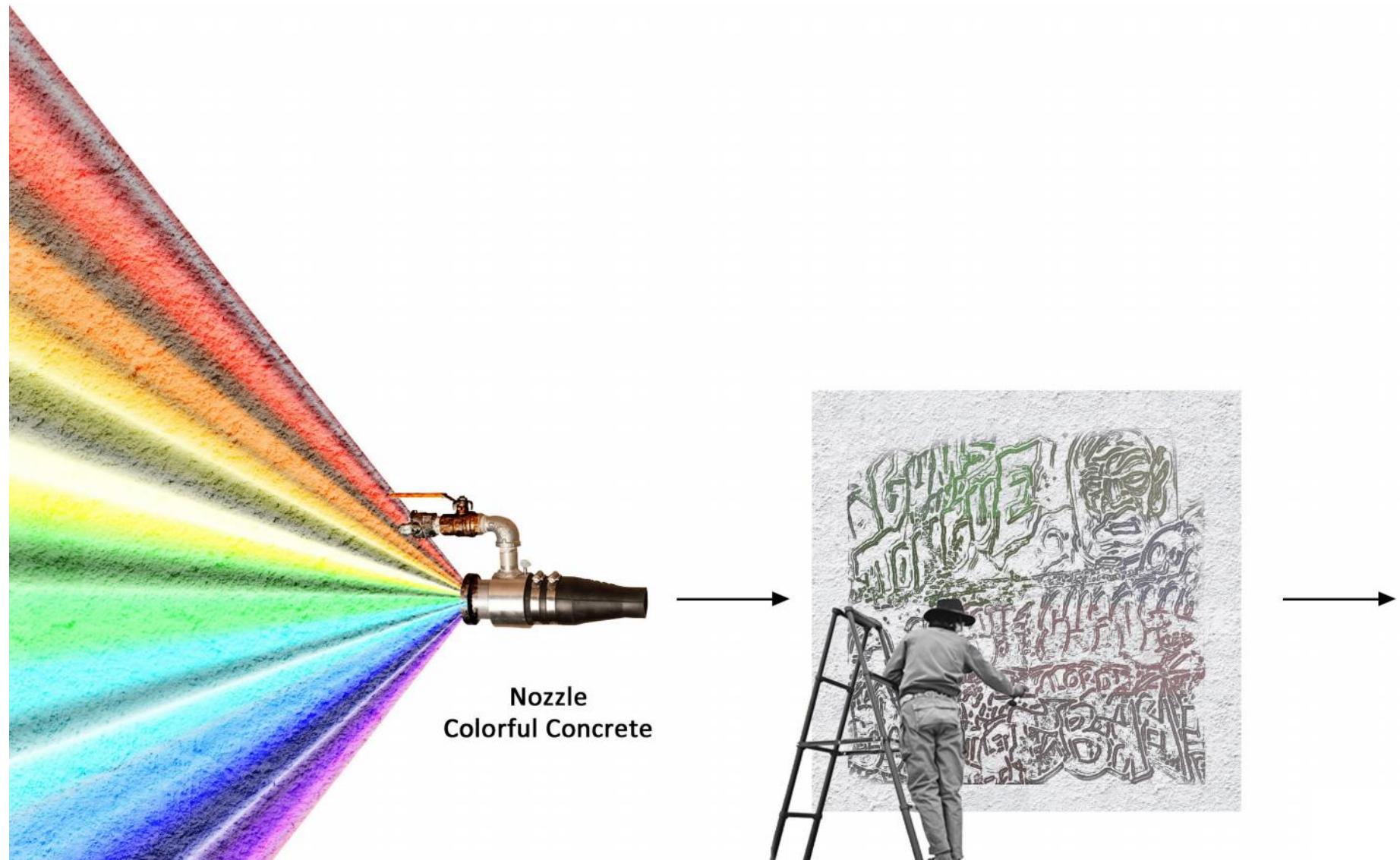


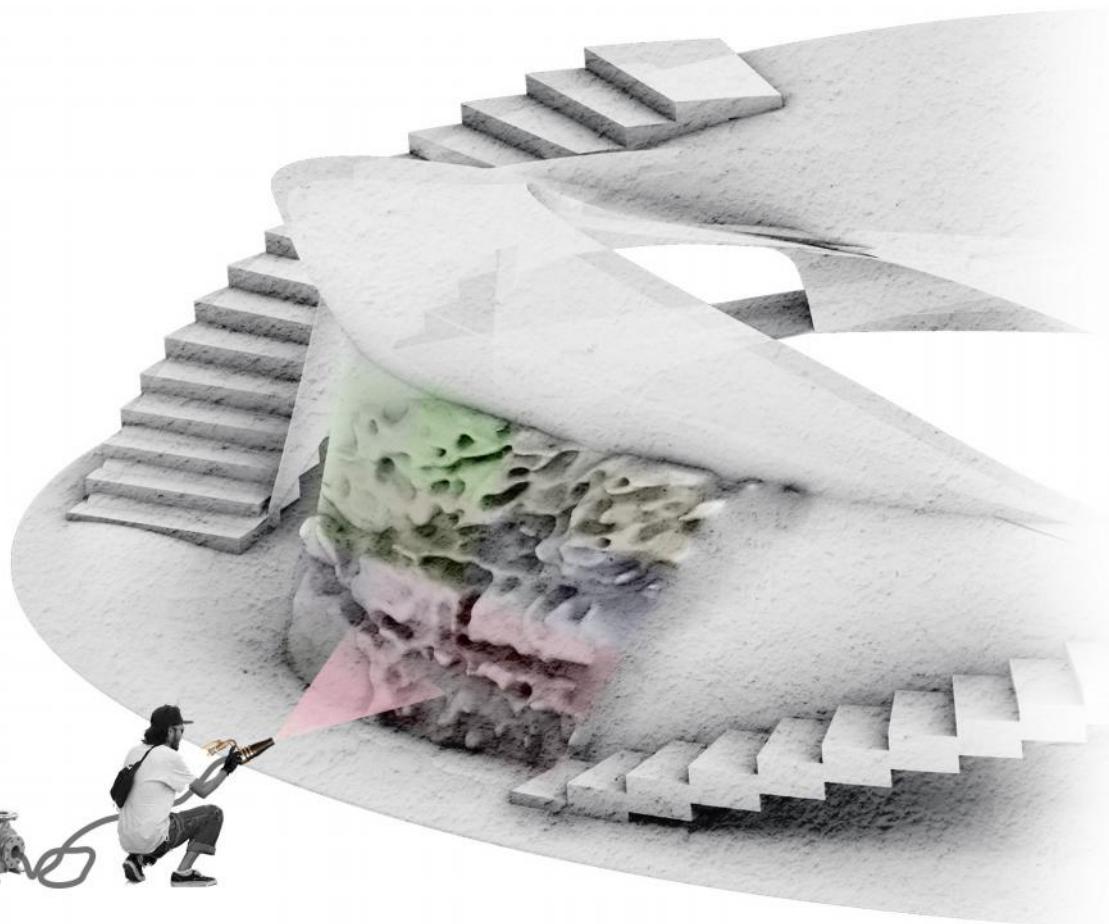


*Left: Graffiti Photos
Middle: Top Views of models
Right : Perspective Views of models*

Texture Implementation

Graffiti artists involved texture design





Spray Three-Dimensional Part

Once the designs are finalized, the next phase involves the application of pigment-infused spray concrete. The graffiti artists will use this technique to bring their three-dimensional designs to life by spraying the concrete onto the steel structure in accordance with the pre-designed patterns. This method ensures that the graffiti becomes an integral part of the structure, resulting in a unique and visually striking final product.



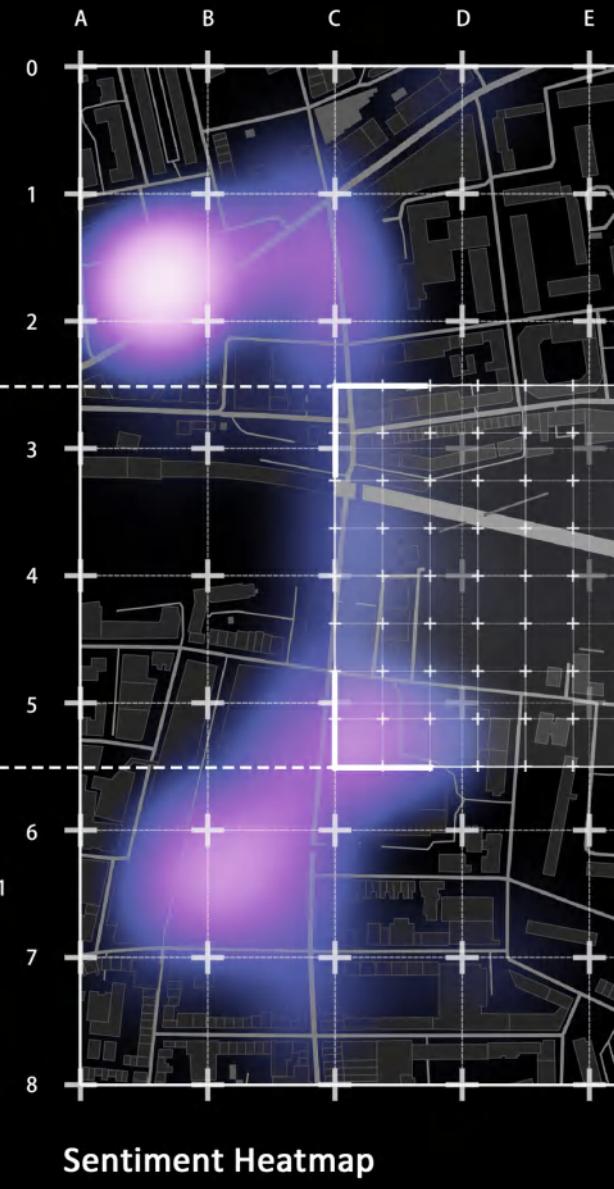
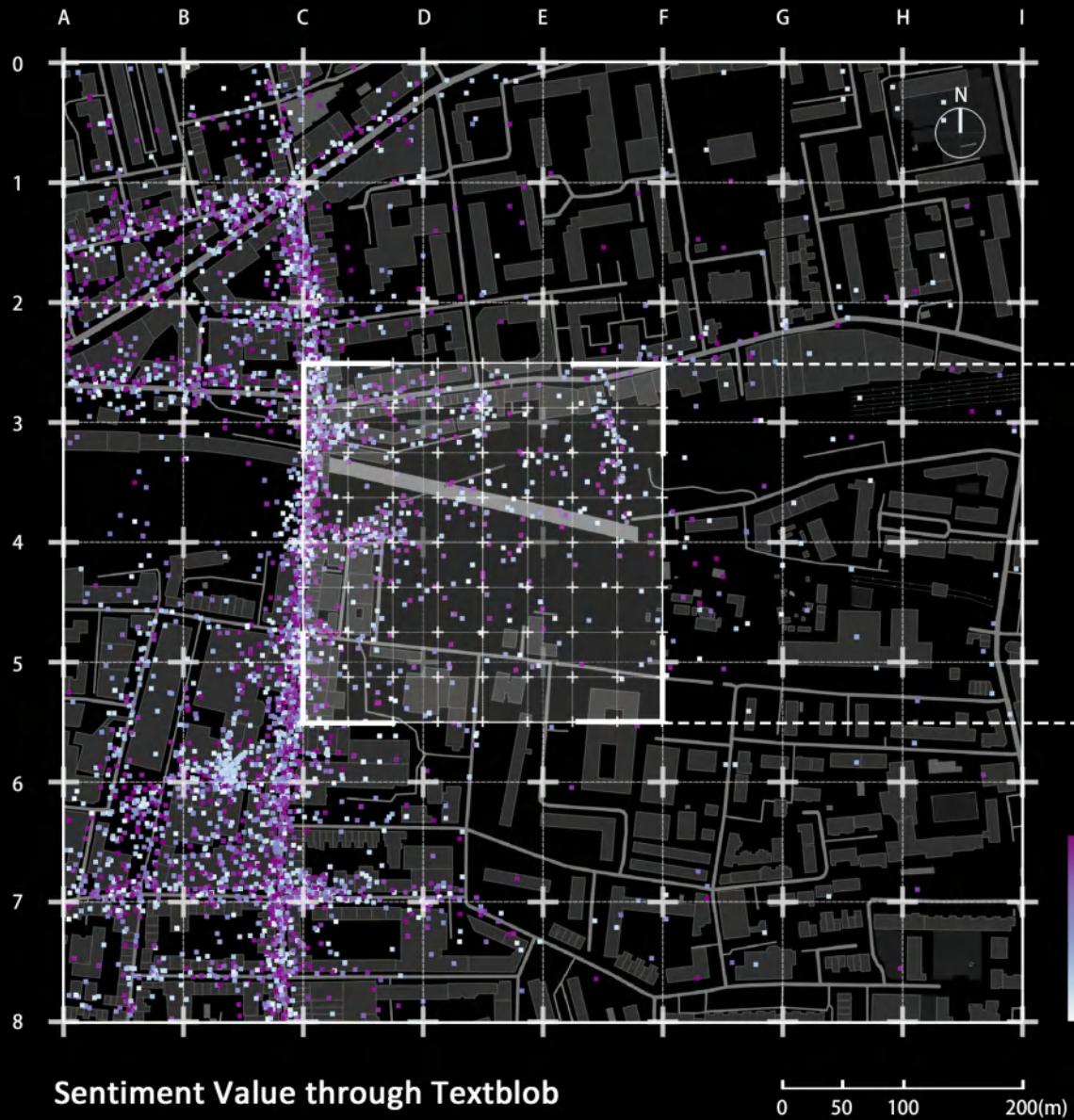
Chapter 06

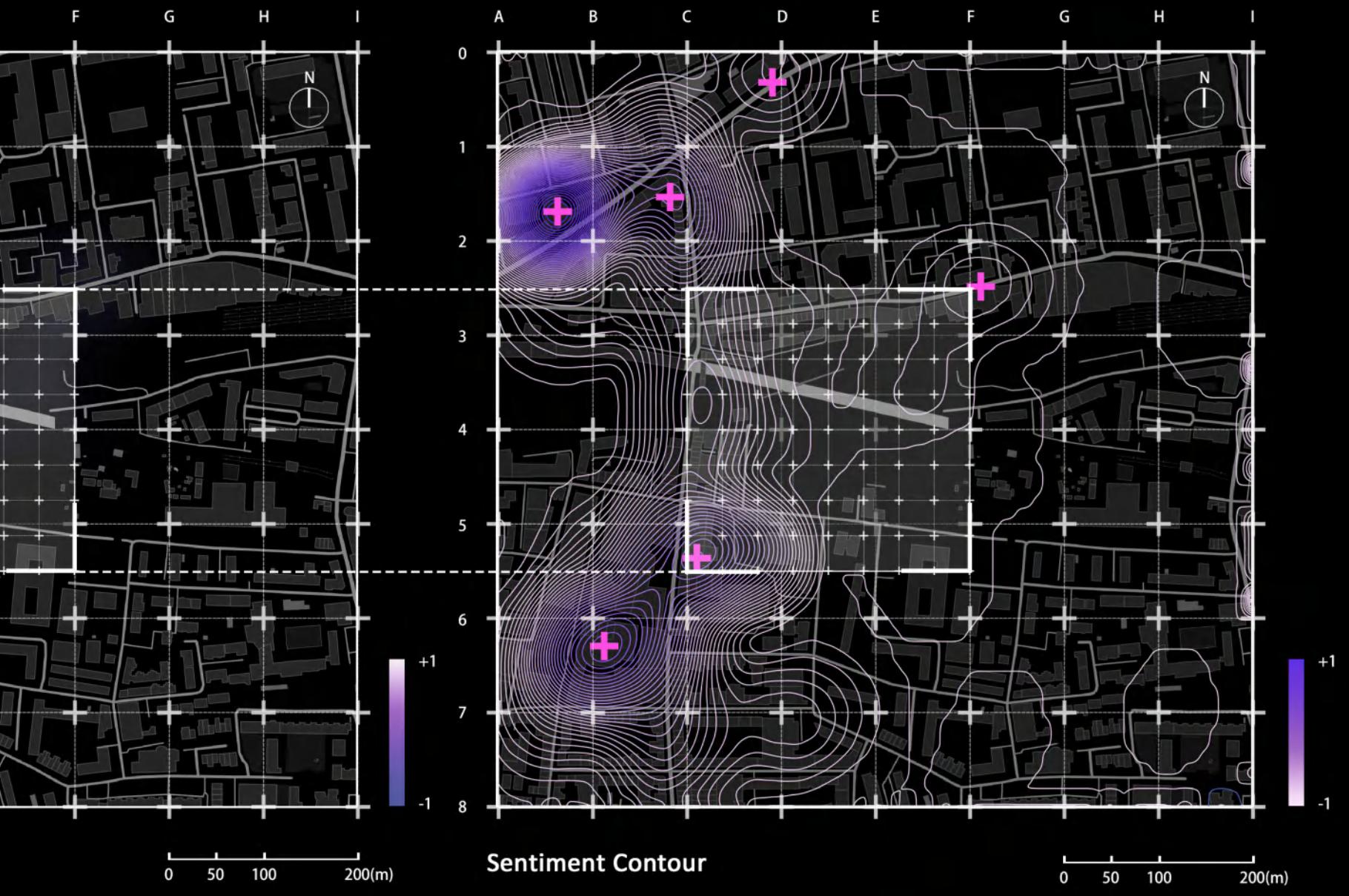
The Wider Context

- Sentiment Data Integration
- Intensity Grid
- Simulation Setting
- Simulation
- Spreading

Sentiment Data Integration

Identification of areas of high emotional value



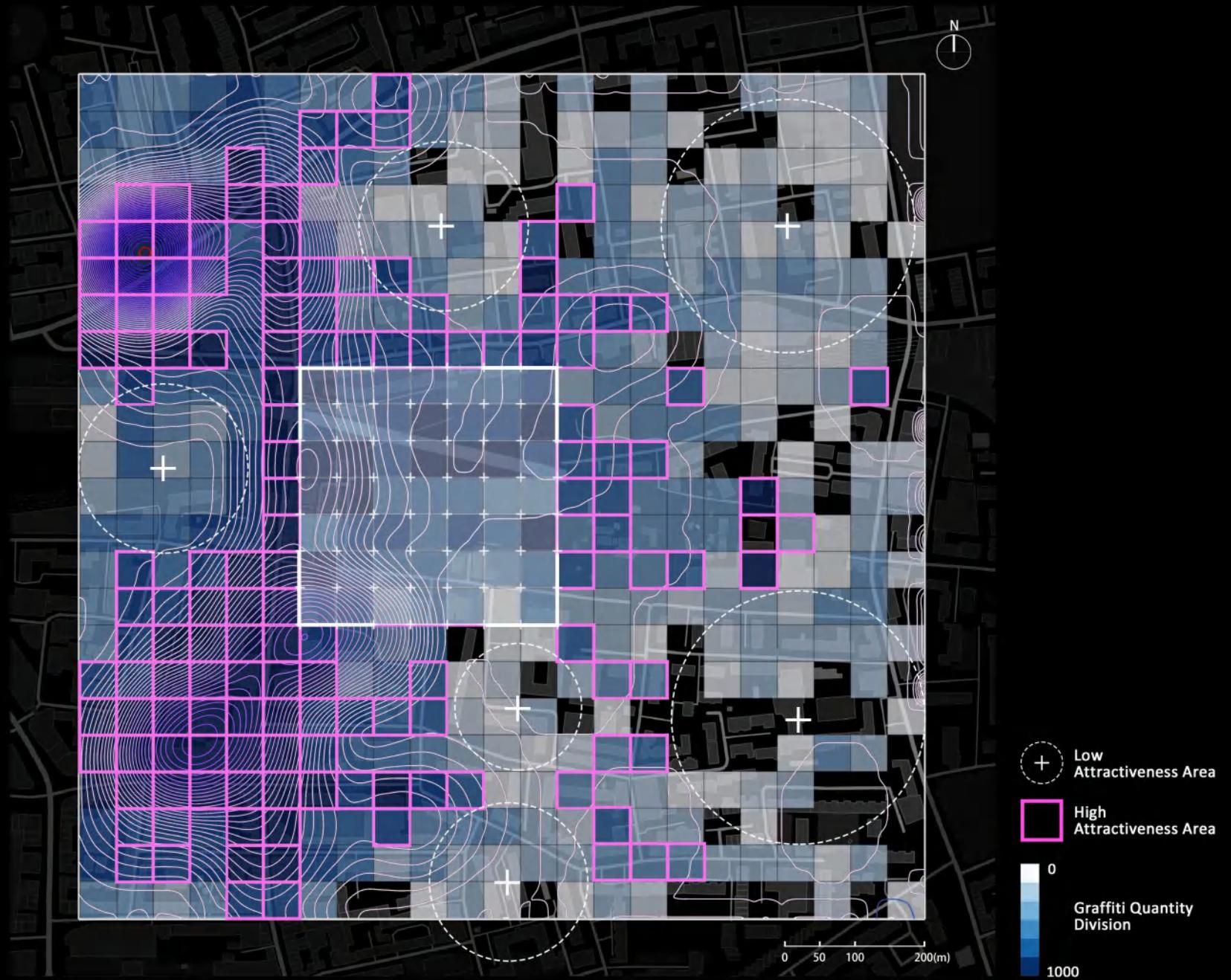


+ High Emotional Value Point

Original Design Area

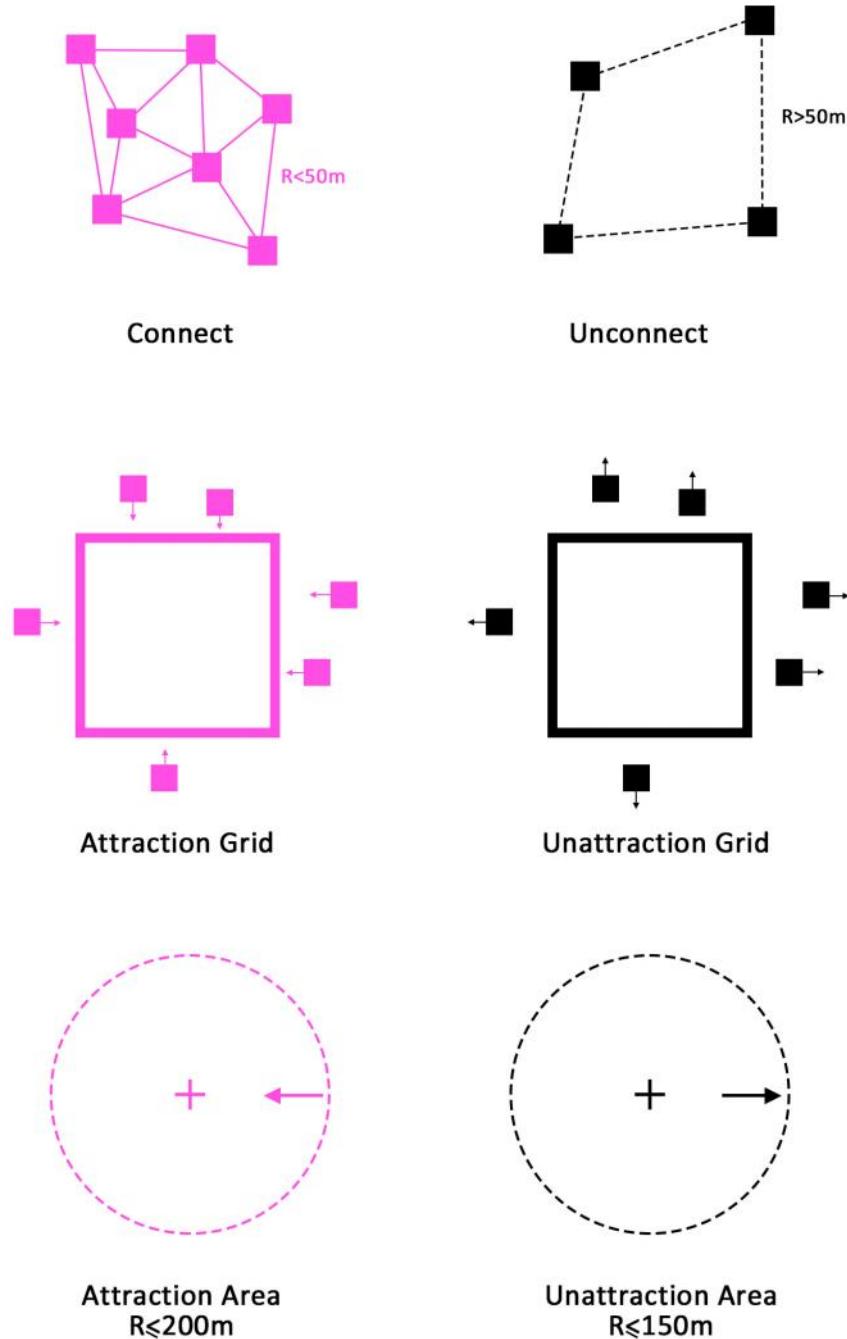
Intensity Grid

Determined by graffiti density and emotional values



Simulation Setting

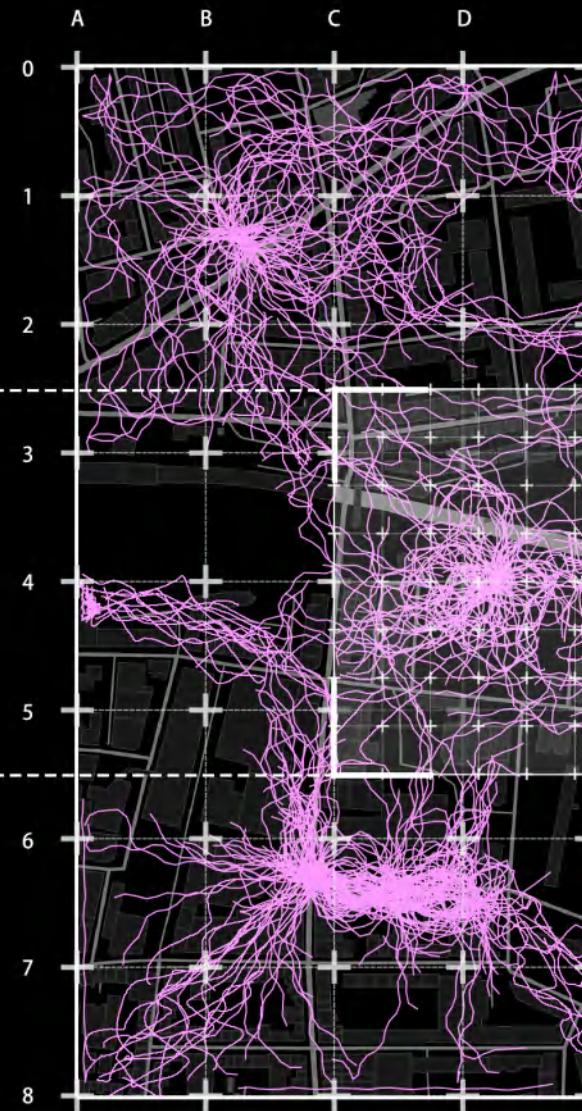
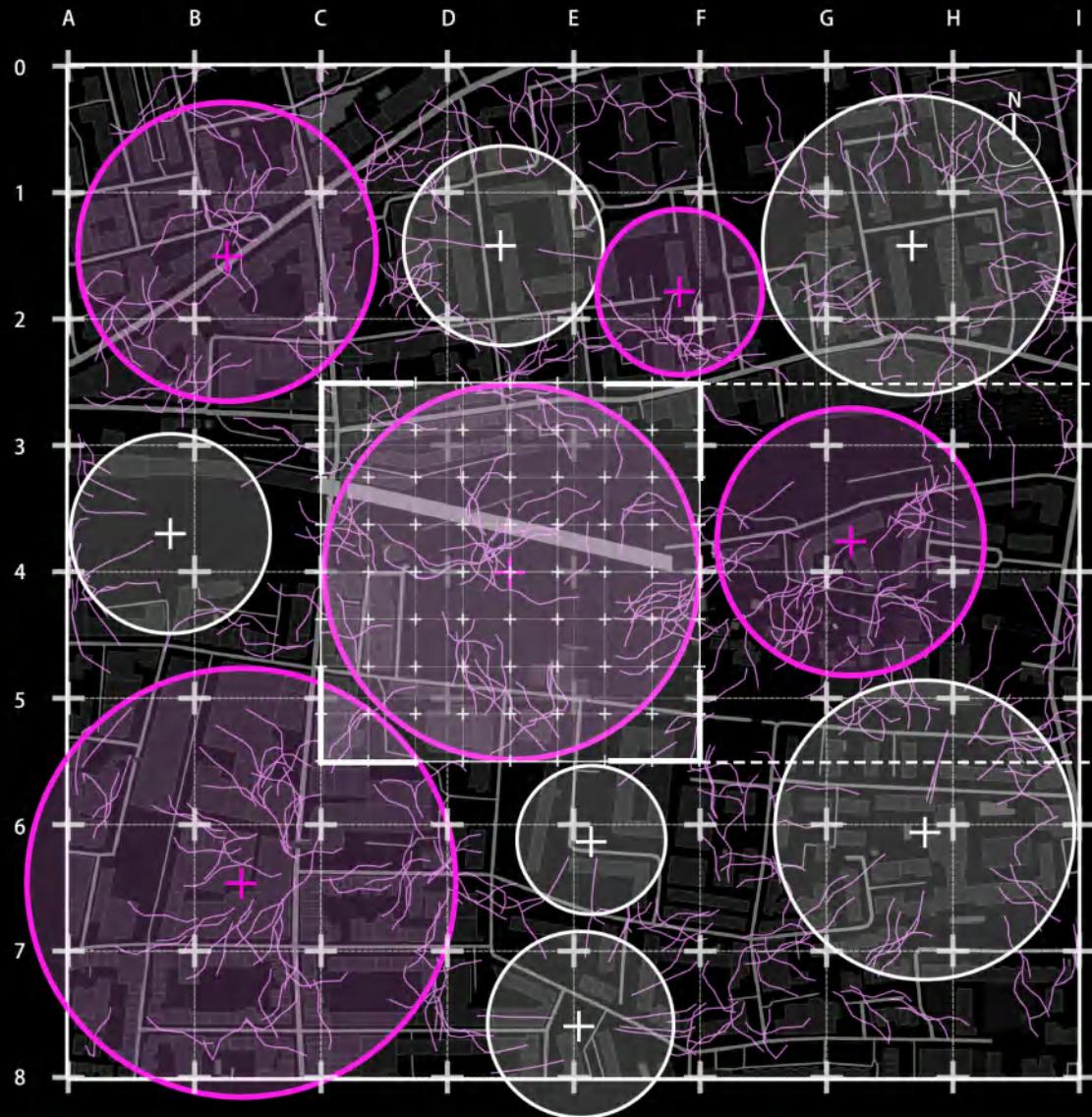
From one module to a group

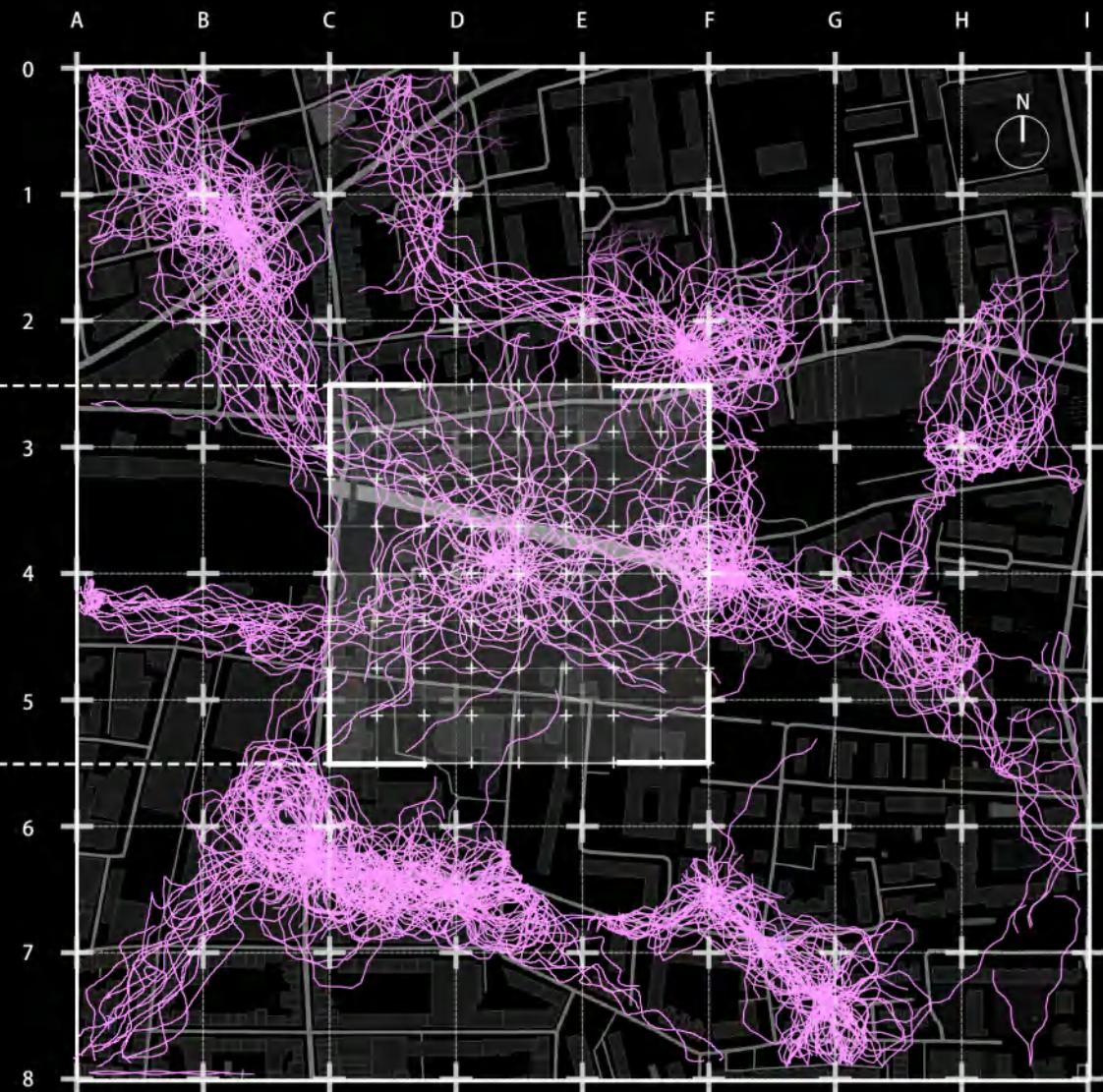
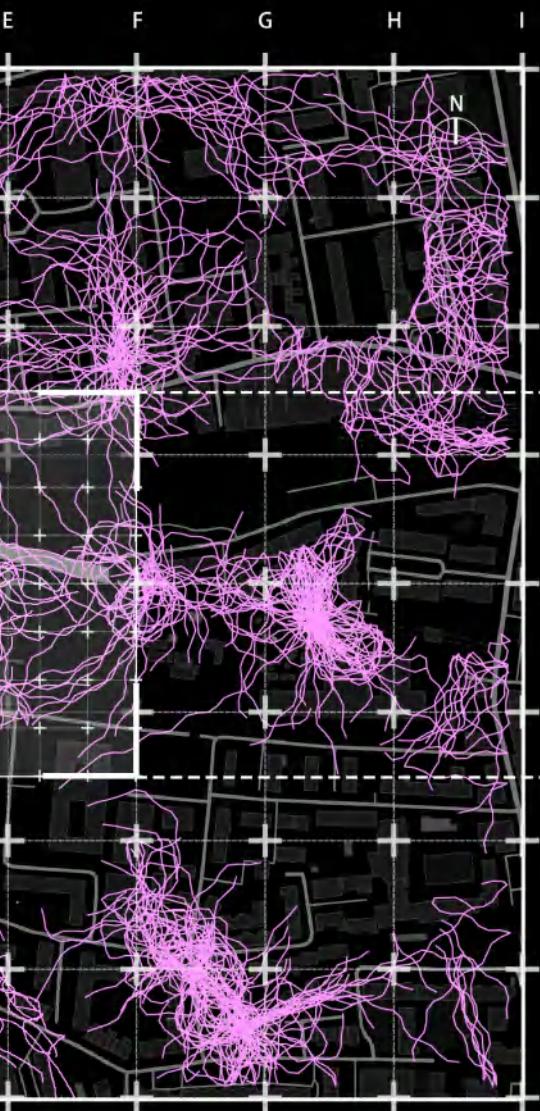


The pink circles represent the attraction grid that has been laid out to encourage people to walk into the area, making it a focal point for visitors. In contrast, the black circles represent areas where entry is discouraged, intentionally forming no-go areas. These two circles (pink circles inviting people in, black circles discouraging people from entering) are key elements in running the simulation. In addition, pink boxes are drawn around areas with high graffiti density and positive sentiment, highlighting areas of interest that align with the attraction grid.

Simulation

From one module to a group



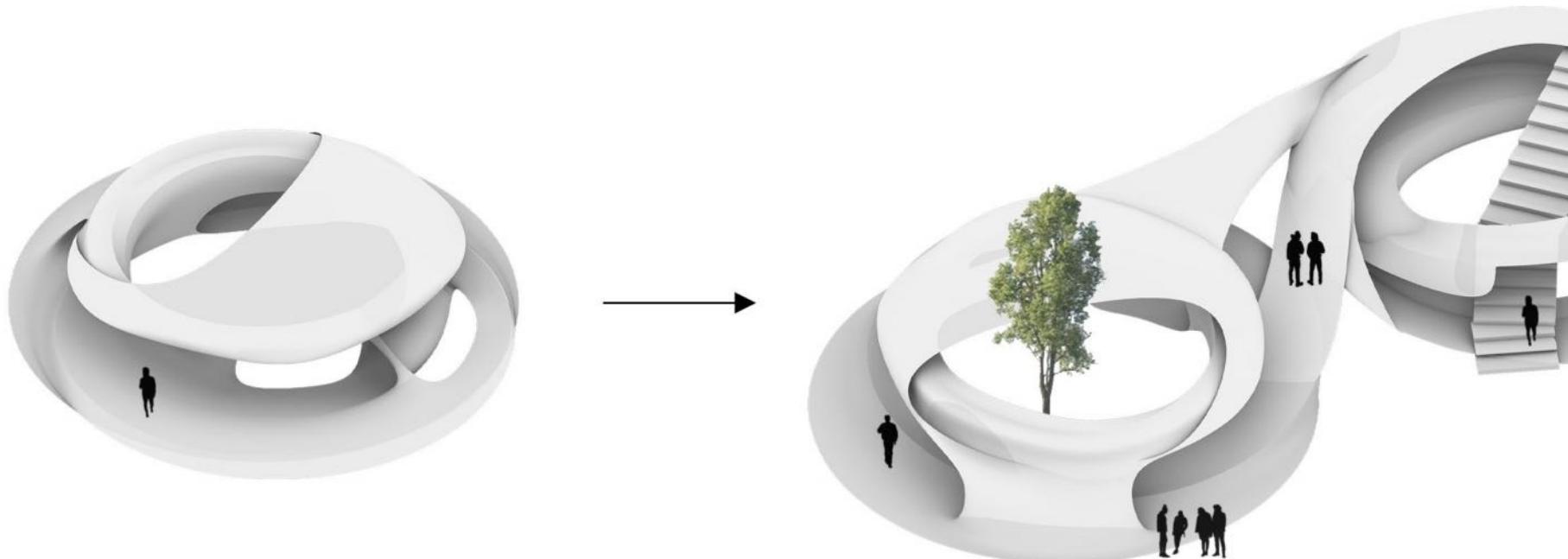


- High Attractiveness Area
- Low Attractiveness Area
- Simulated routes

Spreading

From one module to a group

One Unit ----- One Group



After modifying the exterior shape of a module unit, it is designed to have its own specific function. The modified module allows people to enter and exit the space freely, making it a functional and accessible part of the overall design.

Two modified module units are connected by pathways that link their top and bottom surfaces, creating an integrated structure. This connection provides additional space for people to move between the modules, enhancing the overall functionality and offering more accessible and versatile areas within the design.

One Tier



Multiple interconnected modules, each with different functions, are combined to create a complex and dynamic structure. Within this space, people can appreciate both the graffiti and the changing spatial configurations. This immersive experience not only enhances the viewer's emotions but also significantly increases the overall attractiveness of the area.

Spreading

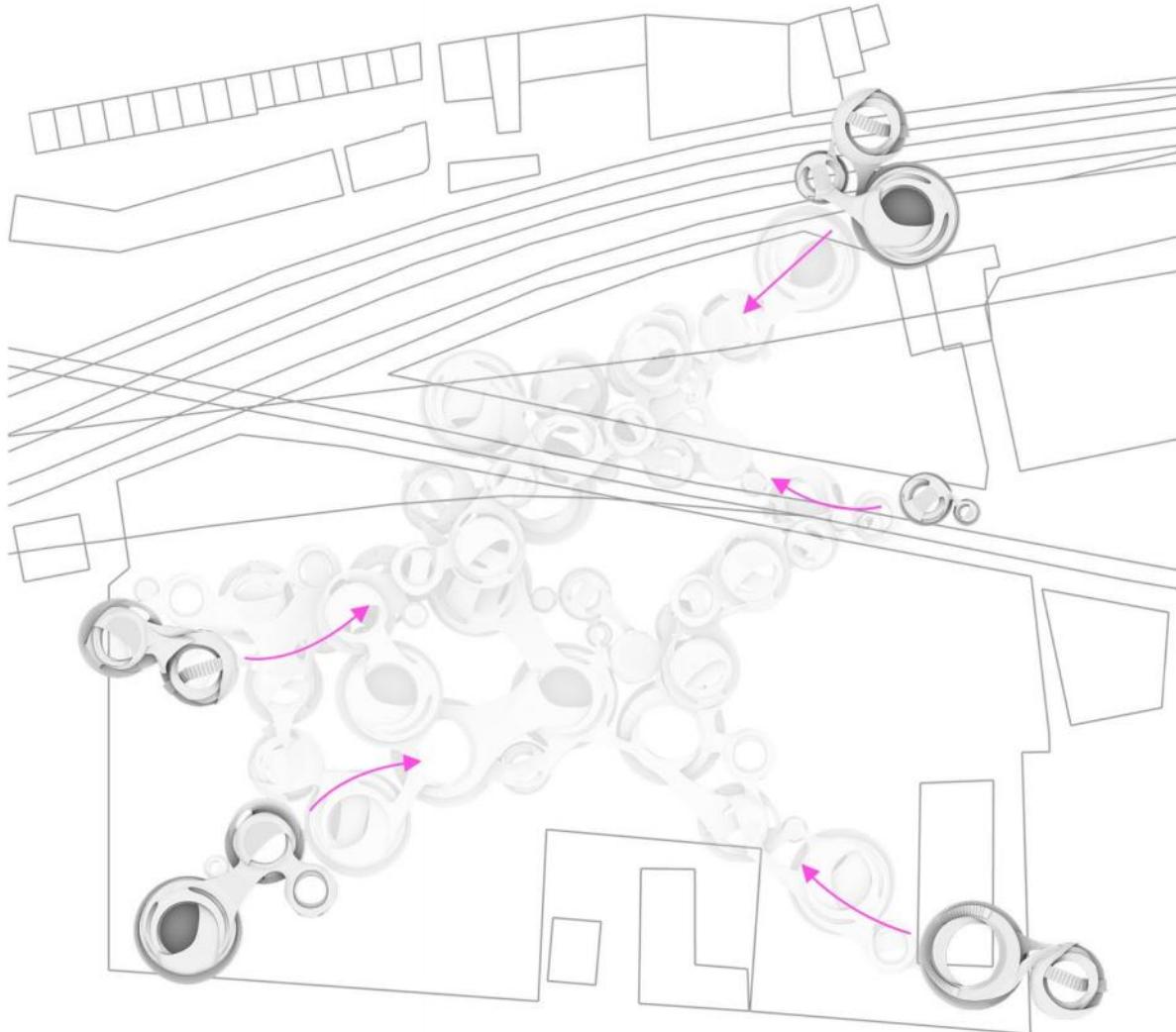
Diffusion from centre to perimeter





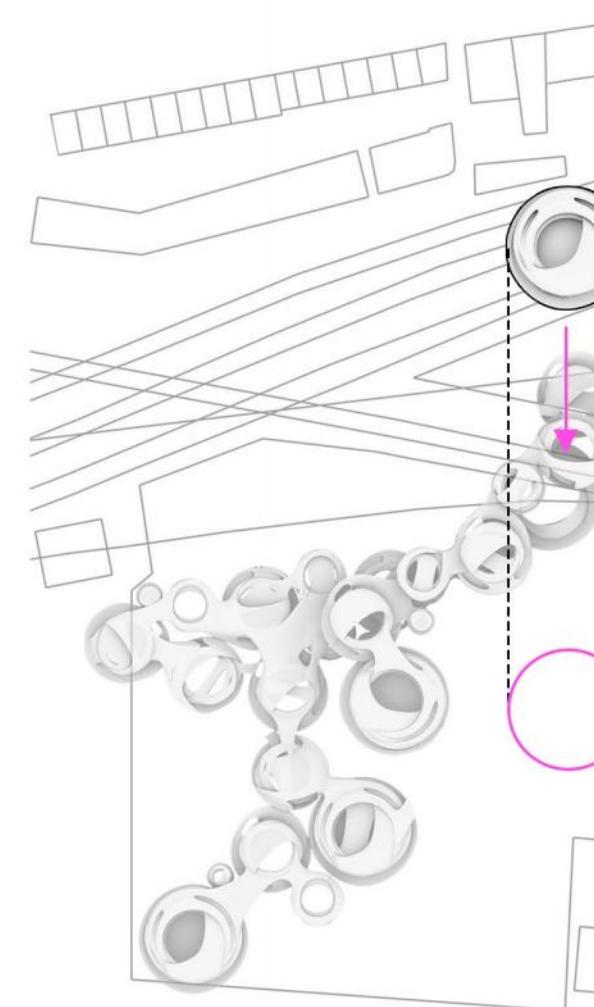
Spreading

Diffuse construction in the park



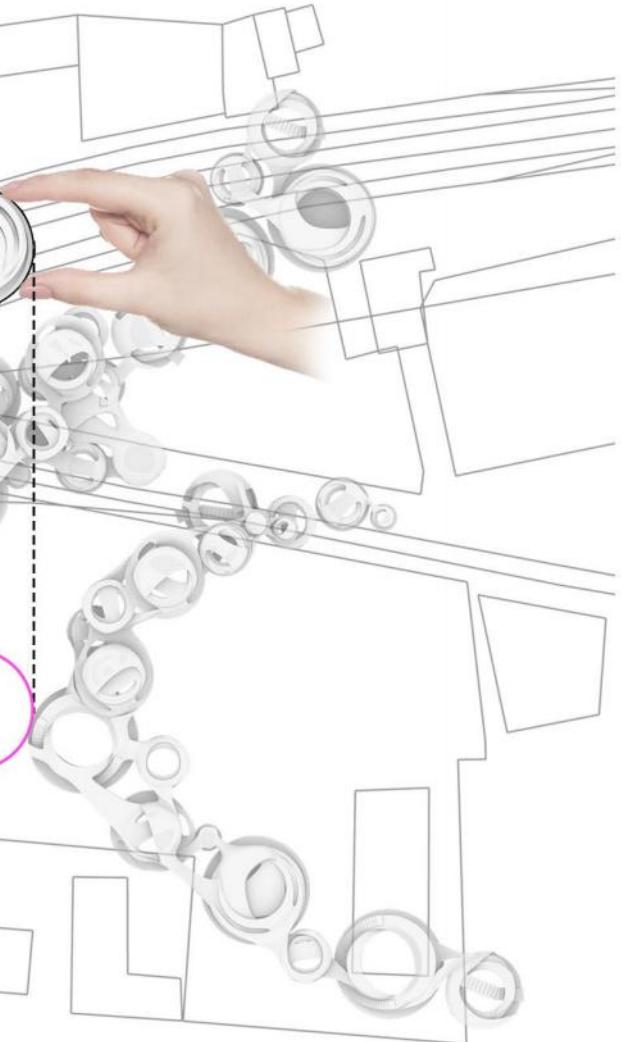
Step 1

Placement of original installations at the five entrances and exits of the park



Step 2

Autonomous construction in the park groups guided by Bottom-up theory



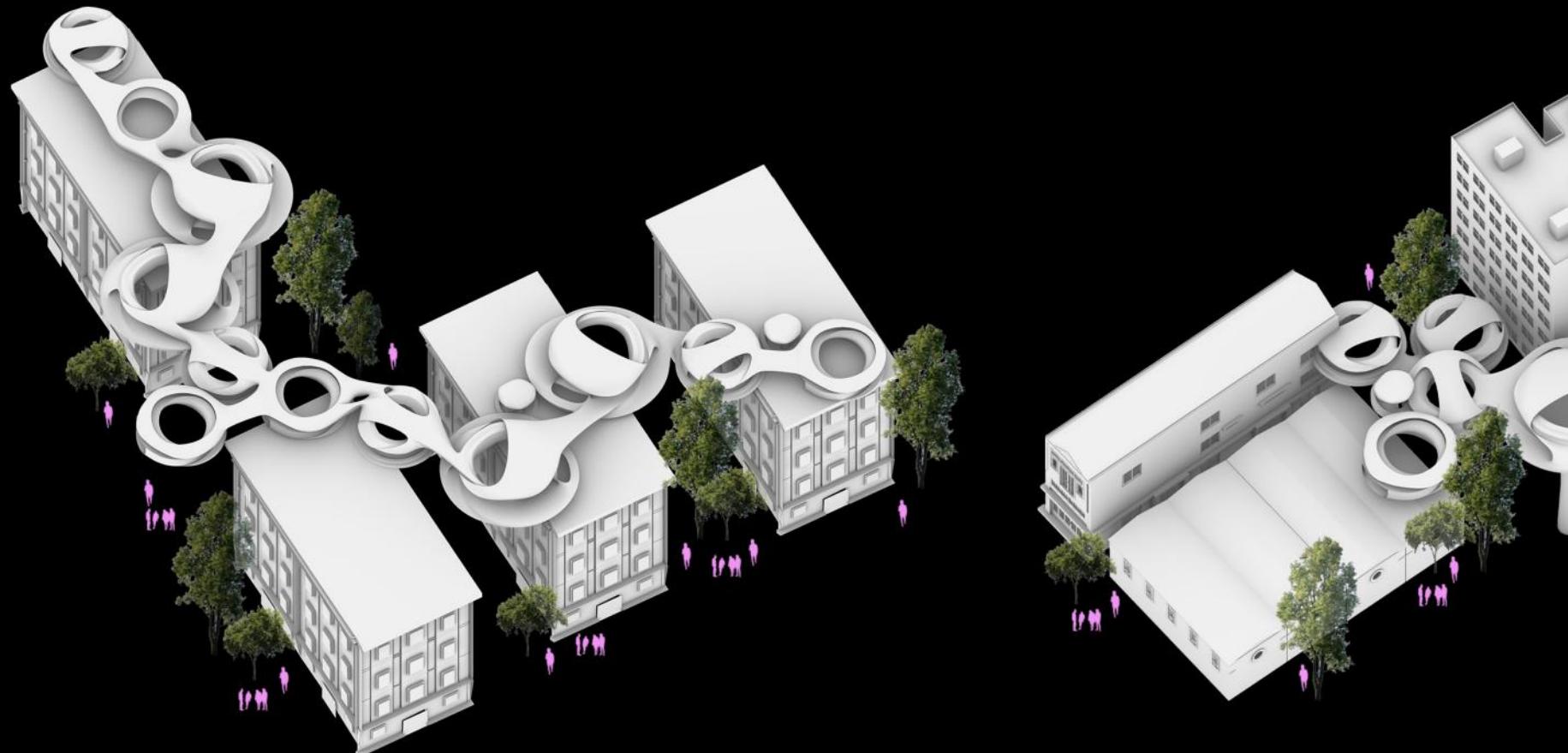
Step 3

ark by community
try

Completion of autonomous construction within the park

Spreading

Diffuse construction between buildings

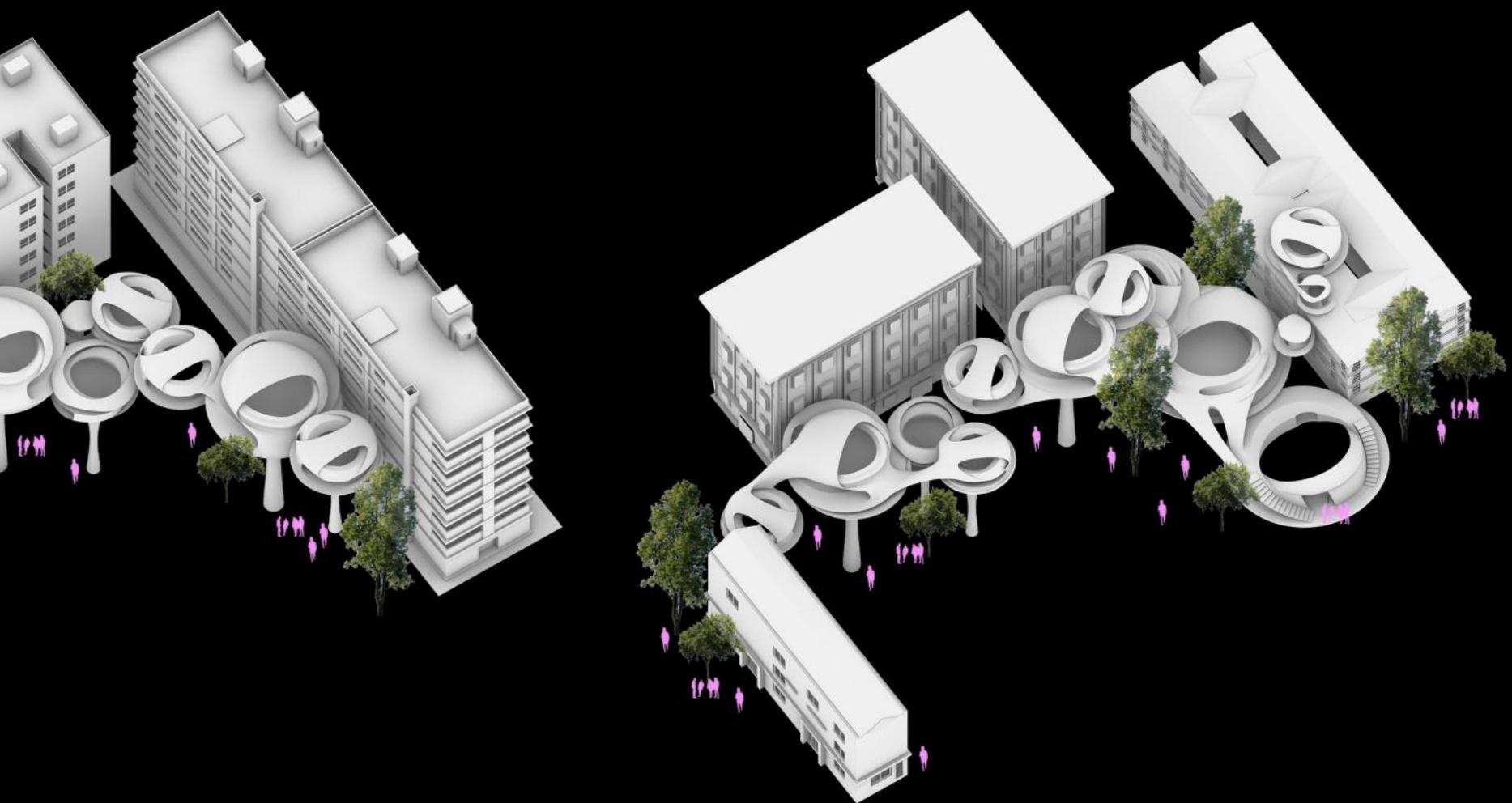


First Type

Weaving Between the Roofs of Buildings

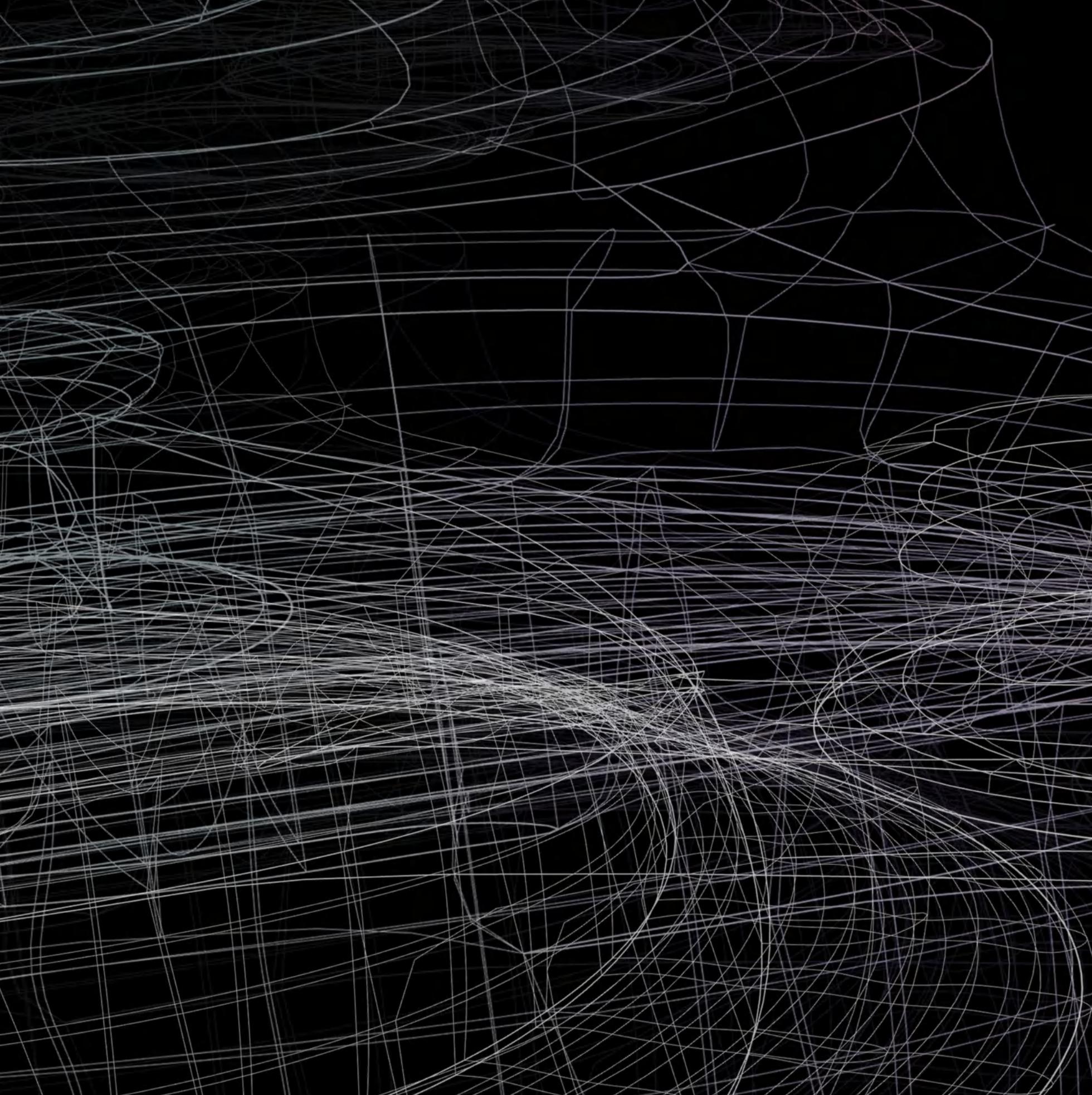
Second Type

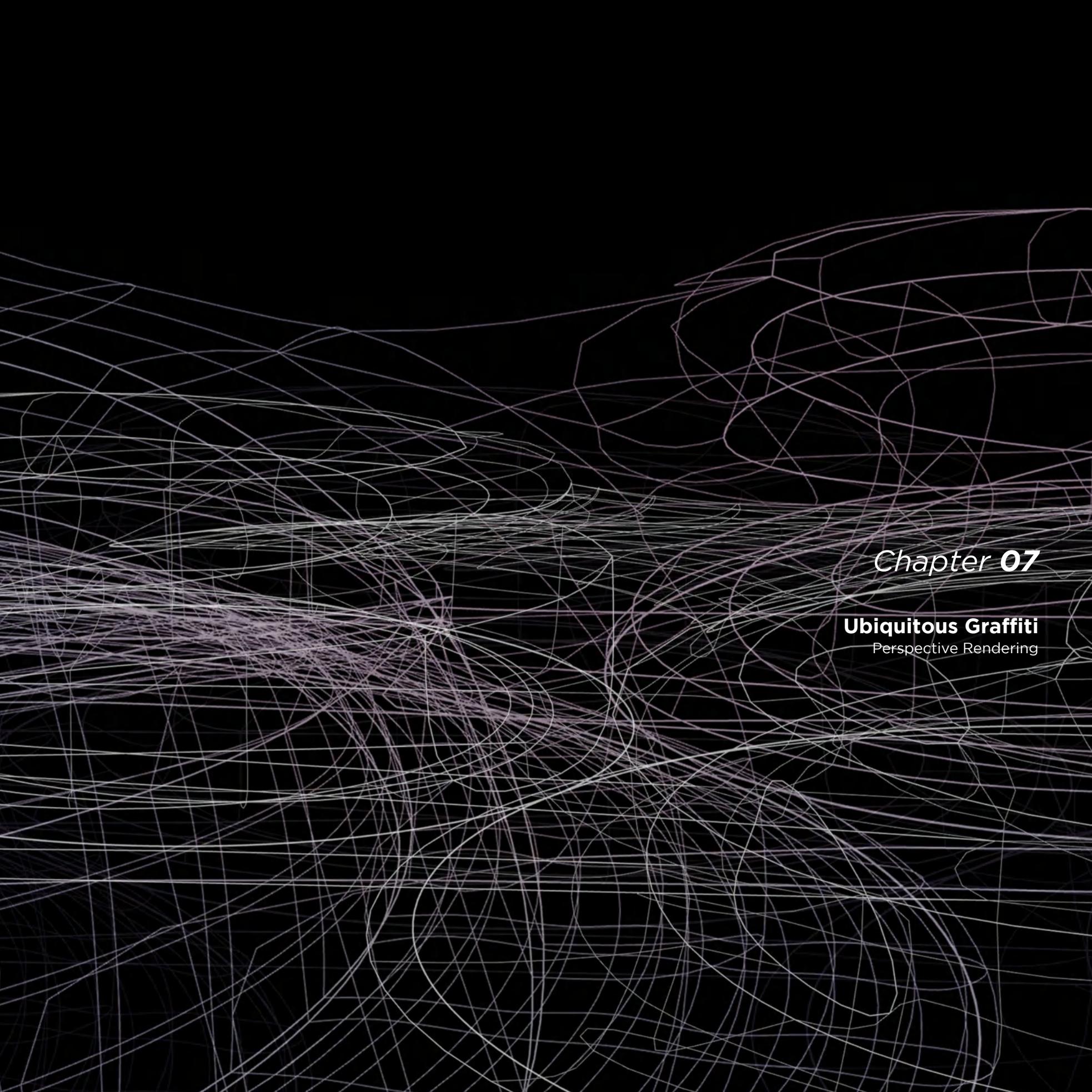
Bridges Between Buildings



Third Type

Surrounded By Buildings



The background of the image is a solid black. Overlaid on it is a complex, abstract wireframe mesh. This mesh consists of numerous thin, light-colored lines that intersect and curve in various directions, creating a sense of depth and complexity. It resembles a 3D grid that has been distorted and covered in graffiti. The lines are primarily white or light gray, which stands out against the dark background.

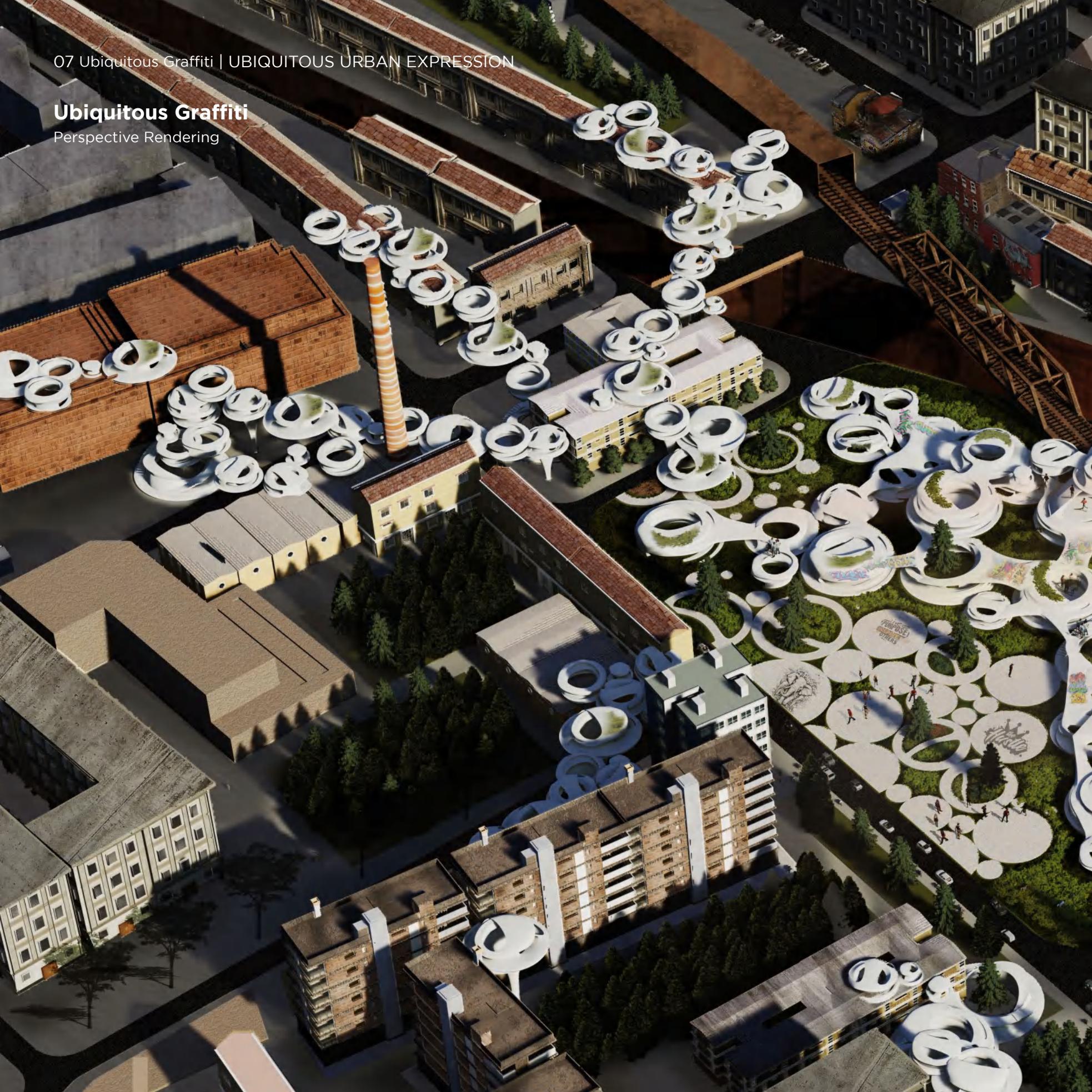
Chapter 07

Ubiquitous Graffiti

Perspective Rendering

Ubiquitous Graffiti

Perspective Rendering



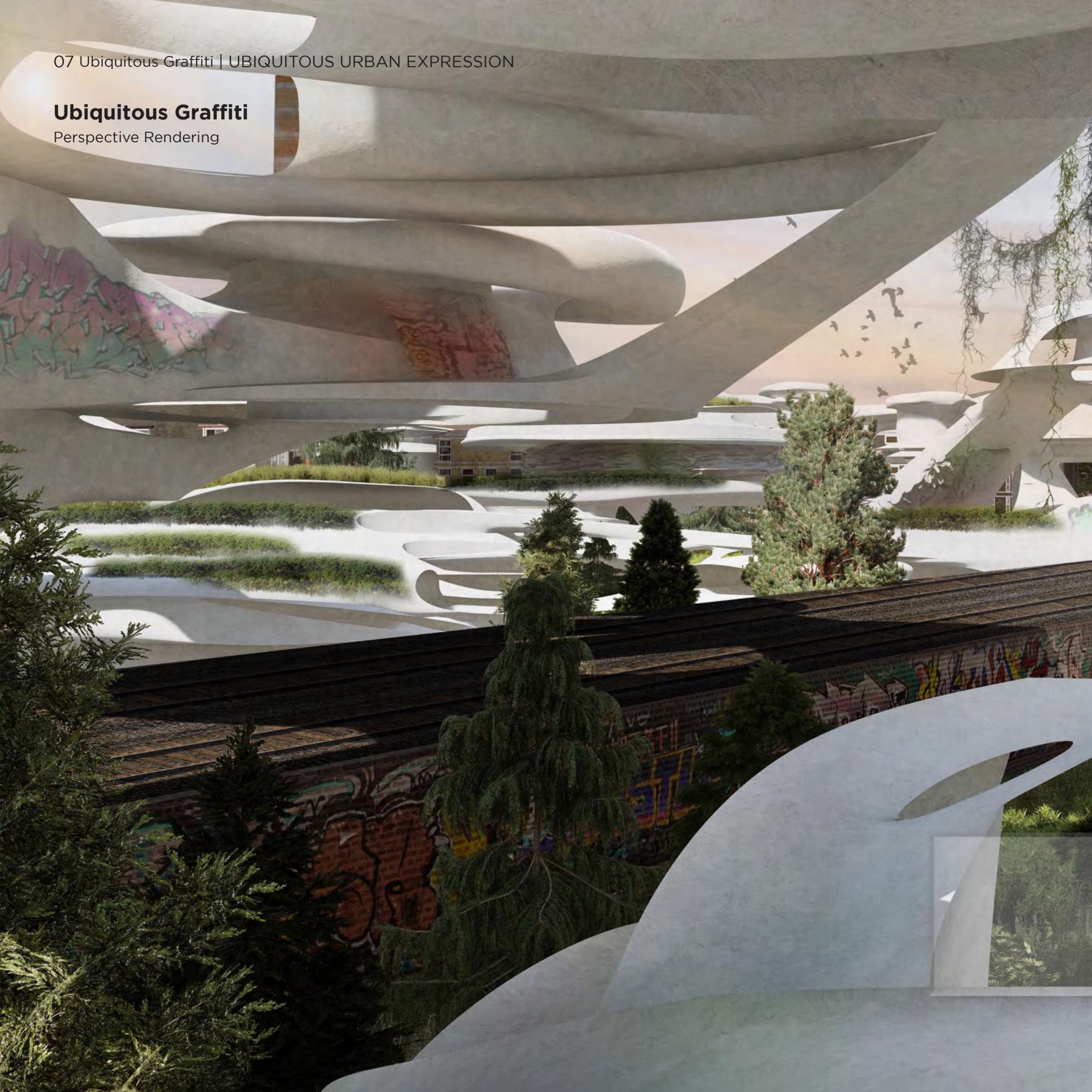






Ubiquitous Graffiti

Perspective Rendering

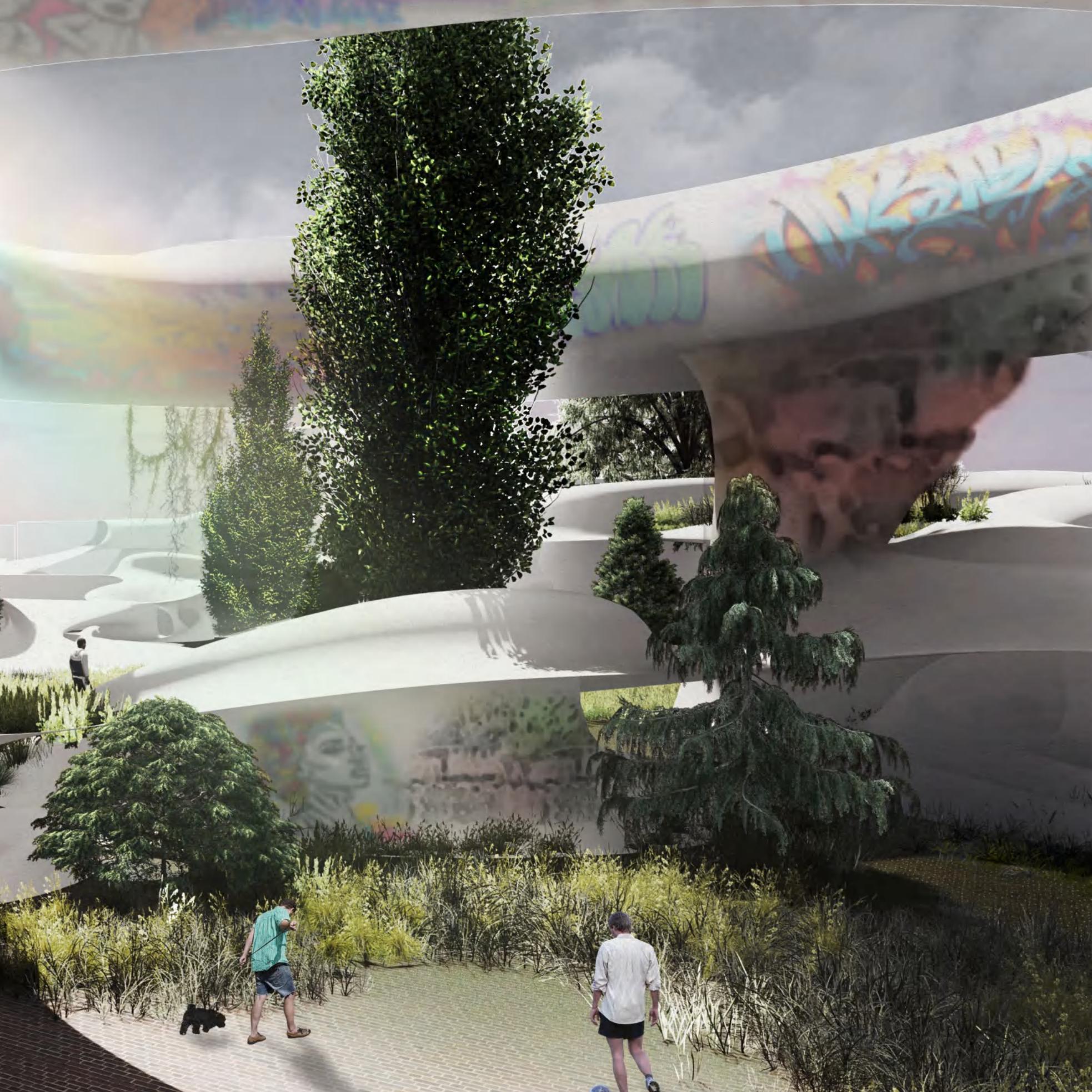




Ubiquitous Graffiti

Perspective Rendering





07 Ubiquitous Graffiti | UBIQUITOUS URBAN EXPRESSION

Ubiquitous Graffiti

Perspective Rendering







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