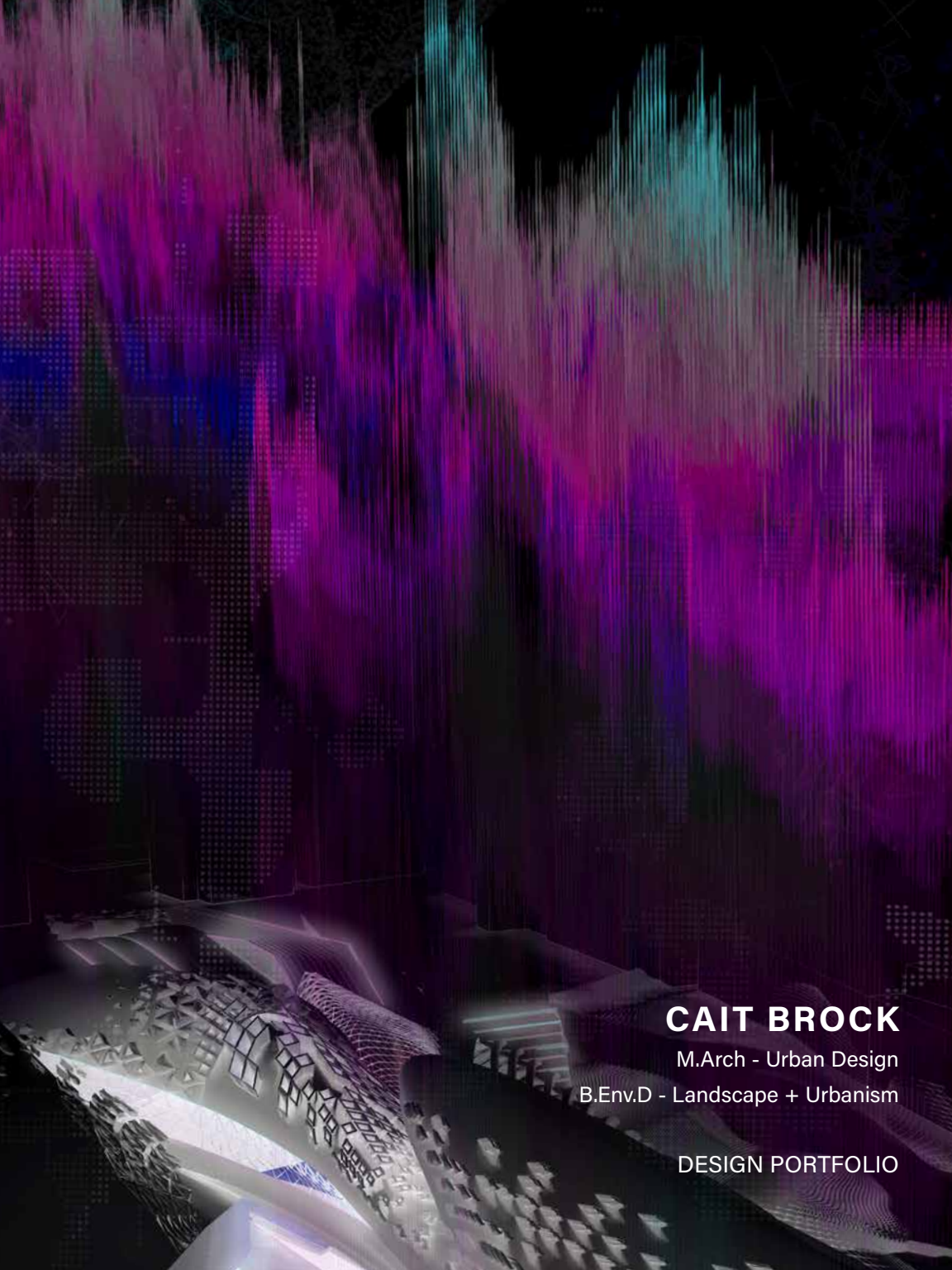

CAIT BROCK

M.Arch - Urban Design

B.Env.D - Landscape + Urbanism

DESIGN PORTFOLIO

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Location | London, England

PART I - Education

THE BARTLETT SCHOOL OF ARCHITECTURE

PERCEPTIVE DATASCAPES

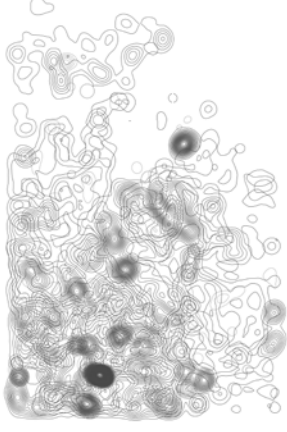
BPro Show The Bartlett School of Architecture
Awards | Computational Design Award + Distinction

Year | 2018
Duration | 1 Year
Style | Group

Goal | Collect, and generate data to understand the city in a different sense.

About | Perceptive Datascapes explores principles of physical and visual connectivity as a method of evaluating and generating new spatial solutions for public spaces of contemporary society. In deconstructing the notion of visual perception, this project questions what it means to create defensible space, challenging preconceived associations with the definition through the reconstruction of topography and form. Through the design of a system which evaluates an environment, in a real time recursive process, this project offers a new opportunity for architects to create 'defensible space' in contemporary urban environments.

Skills Demonstrated |
Rhino, Grasshopper, Houdini, QGIS, Python, Rendering, Model Making



SYNTHESIZING DATA |
Site Selction

The following maps illustrate layers of analysis including an Angular Segment Analysis (Integration and Choice at a radius of 2000) as well as the land use density map. Additionally shown, are graphics demonstrating the correlation between these three layers through a multidimensional comparison.

Legend

Left Page:

Integration - Radius 2000 | Quantile Breaks
Low Values
High Values

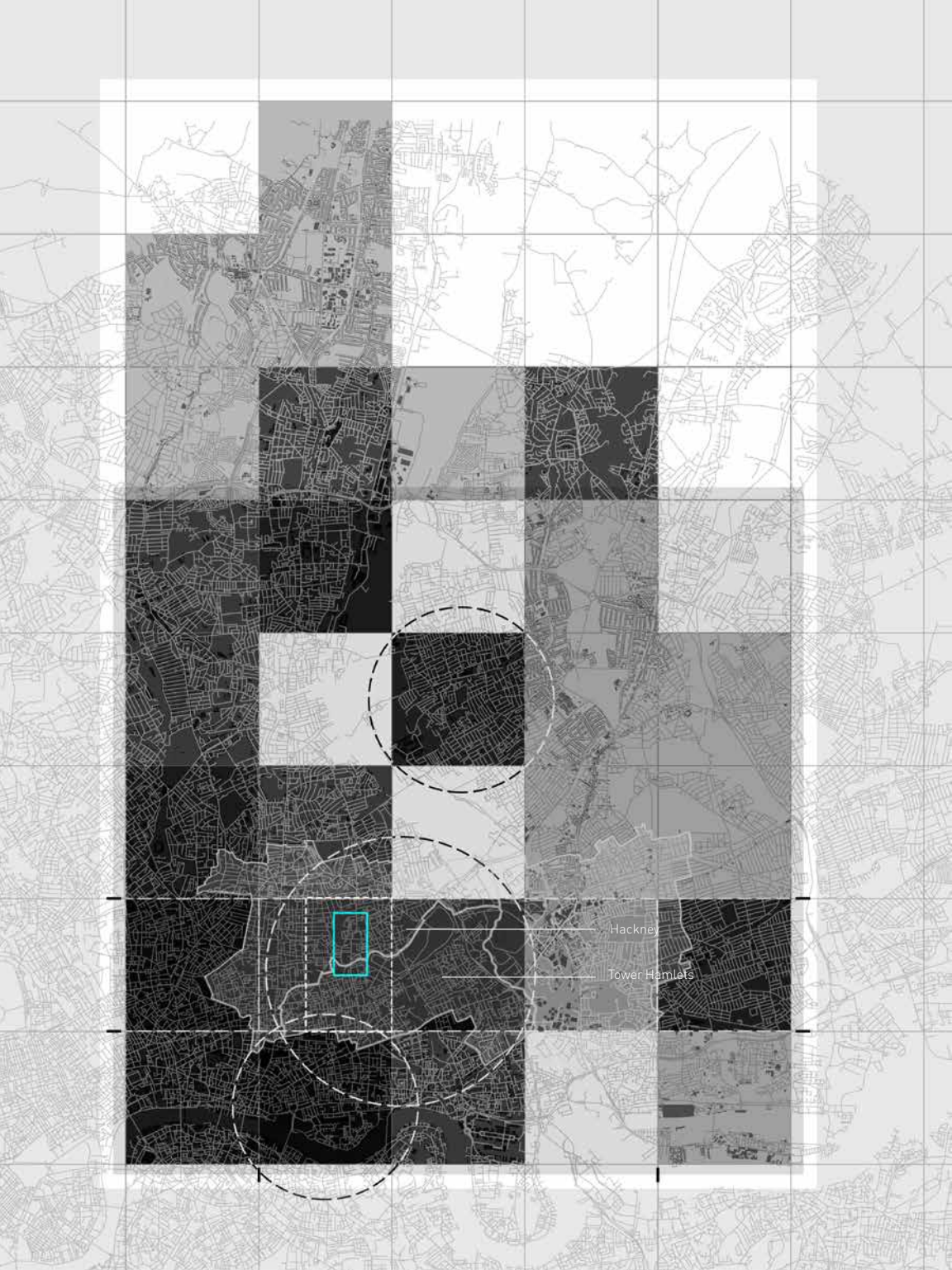
Choice - Radius 2000 | Natural Breaks
Low Values
High Values

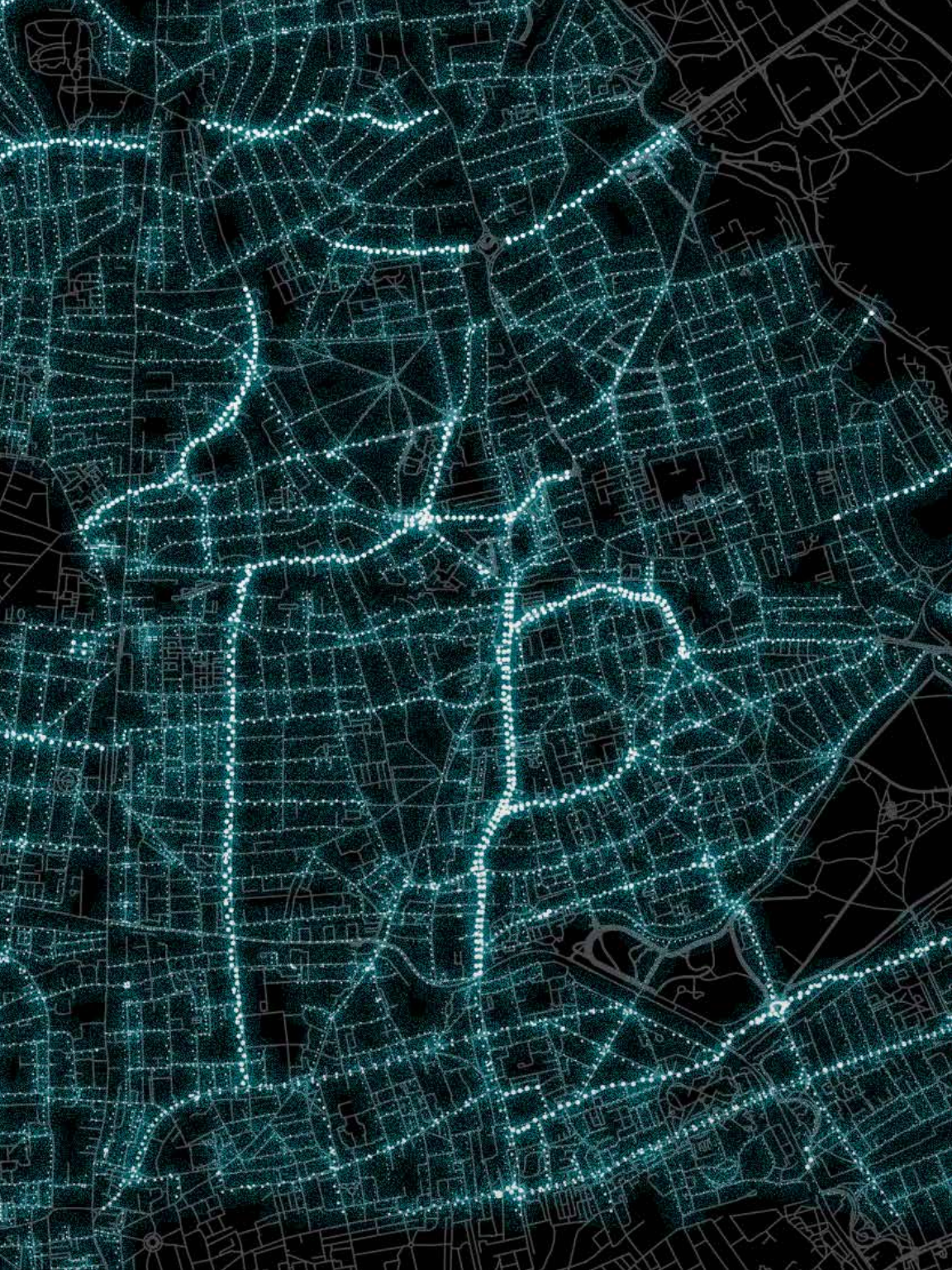
Land Use Density
Low Variation
High Variation

Right Page:

Indicates areas overlap between the values from the three layers.

Selected Site


Hackney
Tower Hamlets

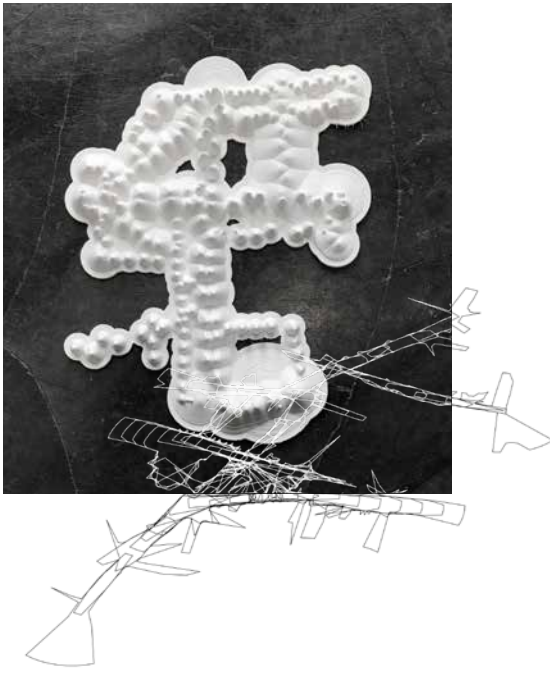


LIGHT |
Illuminating the Shadows

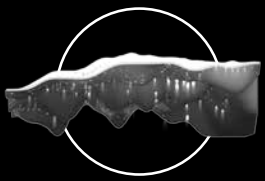
Analyzing two rich datasets provided by the borough of Hackney and Tower Hamlets, this analysis explores methods of visualising and studying light to understand how visual perception may be affected by it.

In addition to lighting patterns, visual indicators on site also suggested that there were issues of crime within the area. Initial analysis sought to explore whether there was a correlation between crime and lighting within the area.

Studying lighting within these neighbourhoods has the potential to serve as a method of investigation into situating qualitative research (phenomenology: the interpretive study of human experience) within quantitative inquiry (big data) in order to explore the validity of affect in relation to environmental behavior. More specifically, considering the data to understand the relationship between light and crime may indicate how fear affects environmental interaction, and how affect and behavior is influenced by elements of visual perception.



$$\sum_{i=1}^{4} =$$



+

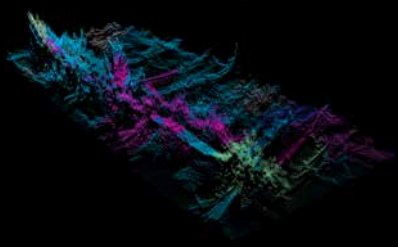
LIGHT

VISIBILITY

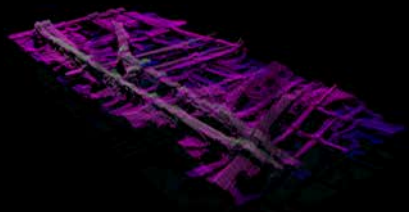
BUILDING A SYSTEM |
The Perceptive Machine

Perceptive Datascapes introduces the design of a system, a machine, which evaluates an environment, in real time, so as to assist in the design process, offering a new opportunity for architects in designing public spaces in contemporary urban environments.

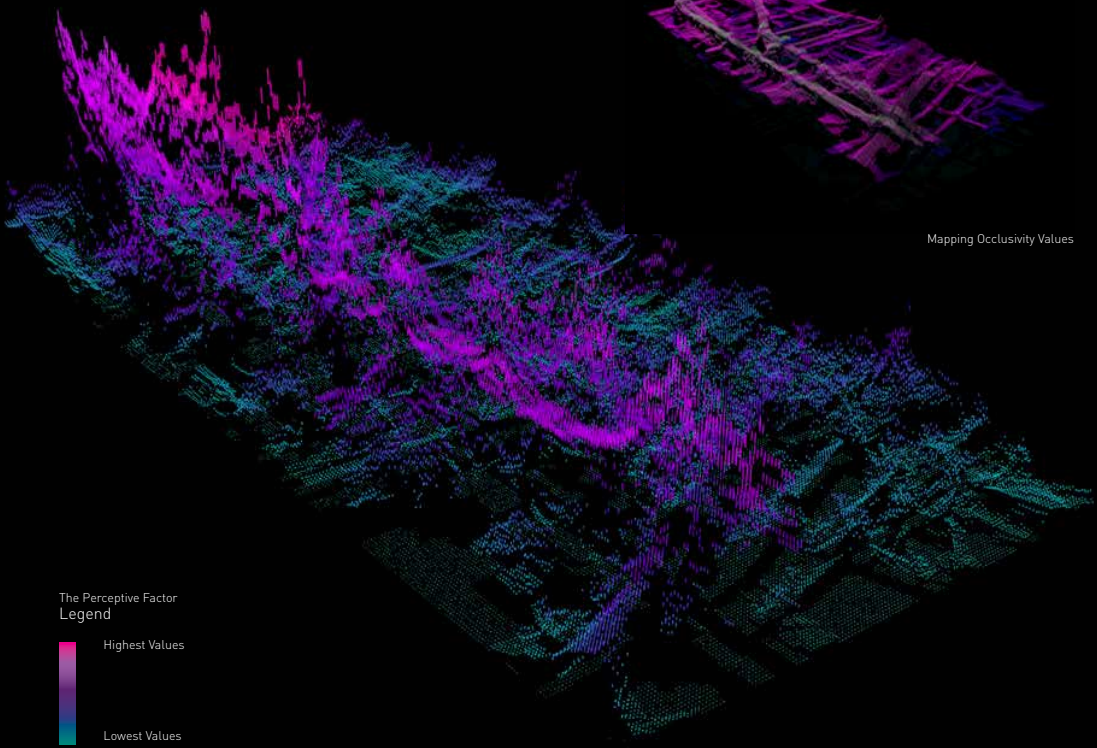
The following image represents the combined values of the four identified parameters and maps them in a 3-dimensional data cloud. This visualisation represents areas with high and low accessibility, permeability, and sense of security.



Mapping Integration Values



Mapping Occlusivity Values



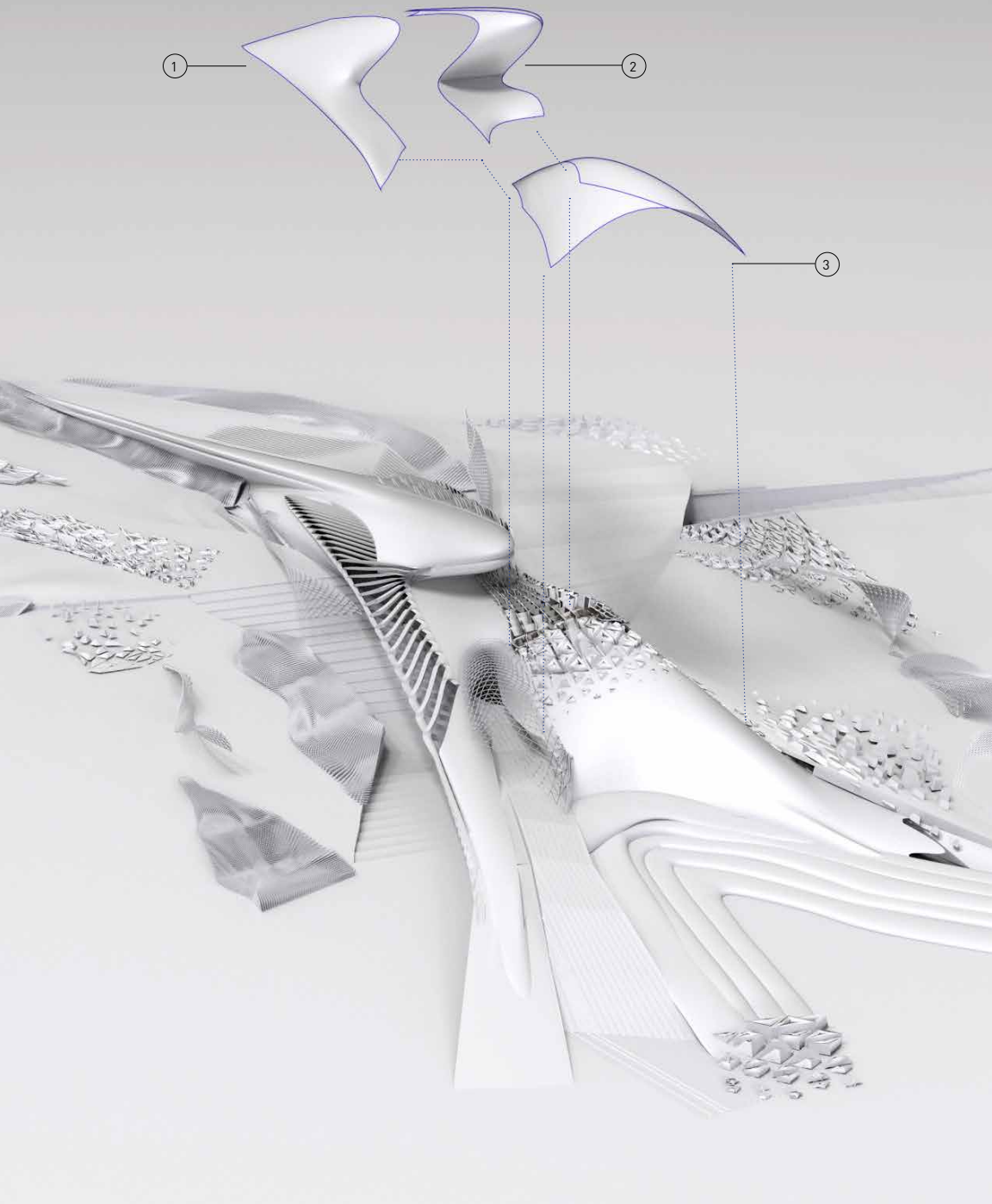
The Perceptive Factor
Legend

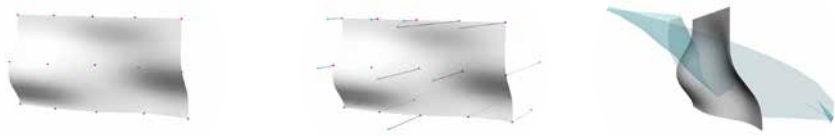
Highest Values

Lowest Values

LUMINANCE
INTEGRATION

PERCEPTIVE DATASCAPES

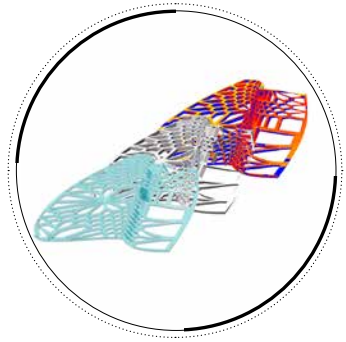




1
The initial surface is analysed and refined to points.

2
The algorithm moves the points, creating a new surface.

3
This new surface is the one to be tested for every iteration.

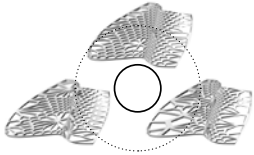


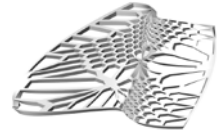
Optimisation Process

5
Multiple surfaces will be generated and tested to reach the optimal result.

4
The algorithm runs the tests to check how well this surface serves the optimisation goal.

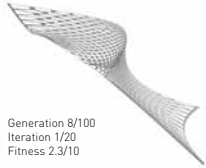
6
Optimal result is reached.



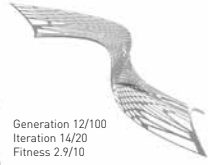


Optimisation Process
Visibility - Light - Integration

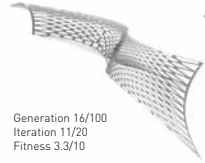
Generation 4/100
Iteration 5/20
Fitness 1/10



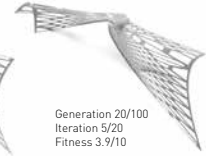
Generation 8/100
Iteration 1/20
Fitness 2.3/10



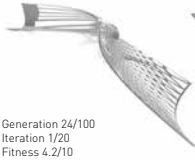
Generation 12/100
Iteration 14/20
Fitness 2.9/10



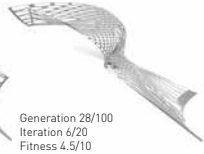
Generation 16/100
Iteration 11/20
Fitness 3.3/10



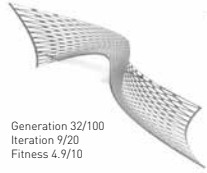
Generation 20/100
Iteration 5/20
Fitness 3.9/10



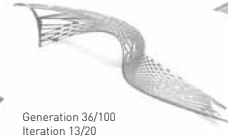
Generation 24/100
Iteration 1/20
Fitness 4.2/10



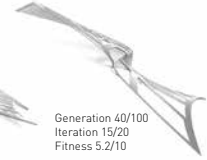
Generation 28/100
Iteration 6/20
Fitness 4.5/10



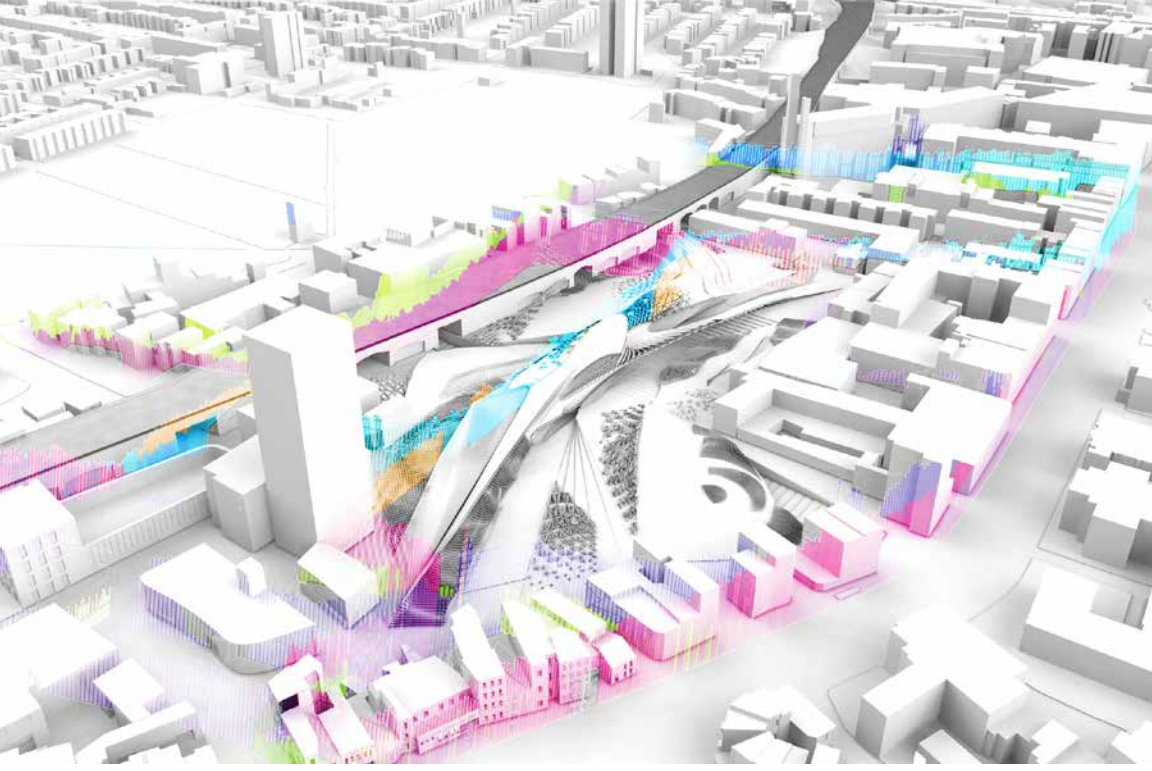
Generation 32/100
Iteration 9/20
Fitness 4.9/10



Generation 36/100
Iteration 13/20
Fitness 5/10



Generation 40/100
Iteration 15/20
Fitness 5.2/10



PART I - Education

THE BARTLETT SCHOOL OF ARCHITECTURE

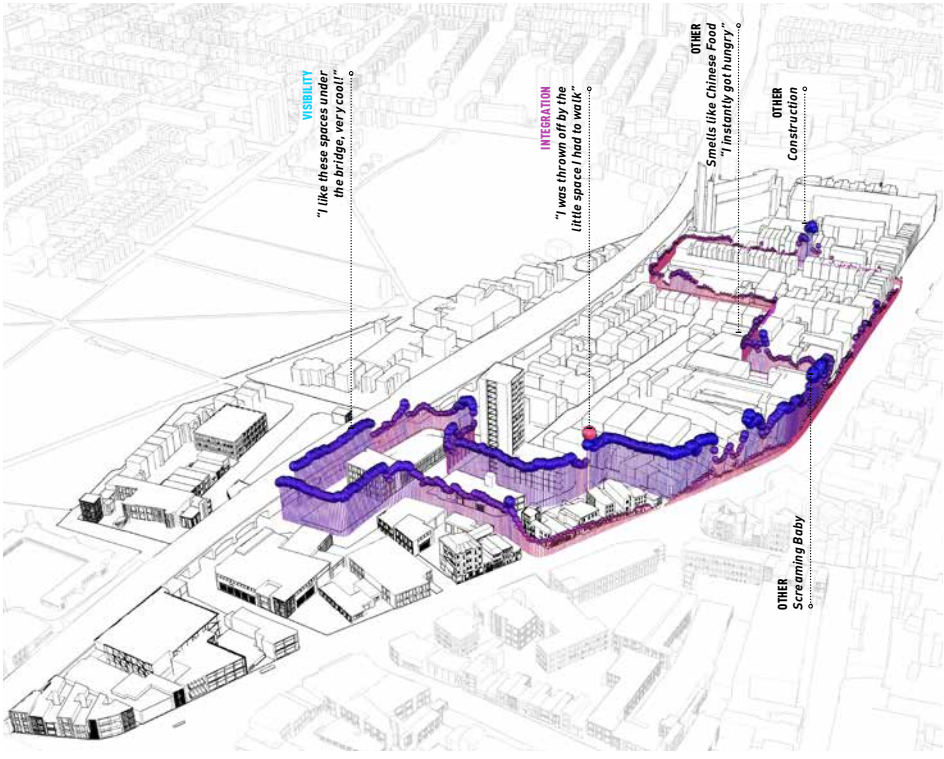
VISCERAL CITIES |

THE POTENTIALS OF QUALITATIVE DATA IN CITIES OF THE FUTURE

BPro Show The Bartlett School of Architecture
Awards | Distinction

Abstract | Moving closer to a "cyborg society", where the human body and technology are synonymous, visualise an urban future that utilises harvested qualitative data to build responsive and/or sentient cities. Through case study analysis, narrative and fiction are used to explore affect in relation to environmental behaviour. Within the genre of design fiction, responsive architecture is used to understand the potential relationship that may exist between a city and its inhabitants. To explore the relationship between architecture and people within studio work, qualitative data is collected using an apparatus built as part of a workshop in association with the London Festival of Architecture. This apparatus functions as a tangible representation of the threshold that exists between subject and object, of people and built form. The paper argues that the use of this tool becomes the methodology that challenges these definitions of what is subject and object, leading us to a future where the line between what is human or inhuman, real or unreal, is indistinguishable. It is when we reach this state that the relationship between people and cities will become symbiotic in nature, establishing a more desirable city condition.

Skills Demonstrated |
Model Making, Arduino, and Writing



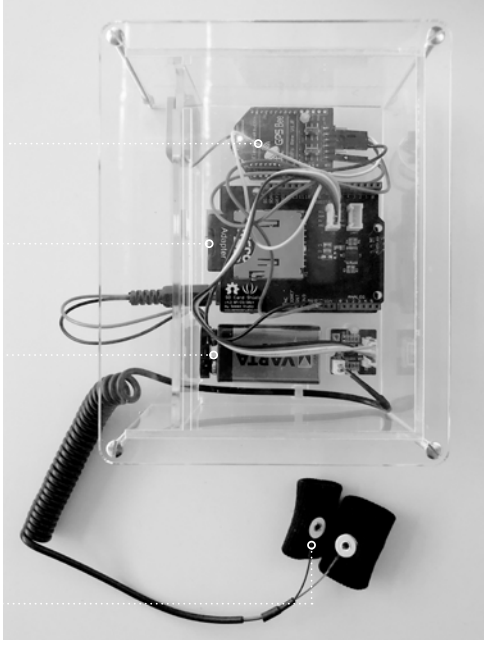
LIGHT

VISIBILITY

LUMINANCE

INTEGRATION

OTHER



Global Positioning System (GPS)

Microchip Data Recording

Battery

Galvanic Skin Response Sensors (GSR)

THE APPARATUS | TANGIBLE REPRESENTATION OF INTERSUBJECTIVE SPACE

The following device was built as part of a workshop run by FLO Architecture as part of the London Festival of Architecture. The device measures heartrate, Galvanic Skin Response, and GPS location.

For the thesis project, this device was used on a group of people to map qualitative data, and compare and contrast the information to the quantitative information gathered in studio. The map above gives indication to the the way the information was used in realtion to the studio project. Notations are made at points on the site where participants identified a feeling or reaction to their surroundings.

PART II - Work Experience

www.the204designcollective.com

THE [204] DESIGN COLLECTIVE

About | The [204] Design Collective started in 2014, as a small group of university students who felt the work they were producing was not reflective of the ideas and projects that we were interested in. Feeling unrepresented and lacking the support and opportunities desired, The [204] was established as a collaborative design group to explore cities, politics, and culture through the lens of environmental design in pursuit of a design practice that reflected our communities, and our values.

Our work, in part, is fueled by our lived experiences and is shaped by the needs of our often underrepresented communities. In order to break down the power dynamics often encountered within the discipline, we work towards bridging the gap between theory and practice, connecting discourse with application and action. Through the medium of an online journal, which relies on contribution from the community, we explore ideas, concepts and theories that work to apply and feed into our designs. This journal lays the foundation for our projects, highlighting important and often unaddressed issues.

Skills Demonstrated |
Design, Graphic Design, Organizational Skills, Creative Thinking, and Planning.

As Co-Founder and Creative Director of The [204] Design Collective, my contribution includes website design and upkeep, content curation, design and graphics, and proposal composition.

Most recently The [204] hosted an event at **The London Fesitival of Architecture, 2018**. **Decolonizing Architecture,** consitied of five events over the course of the month of June**.** Following the success of this event, The [204] was contacted by **The Royal Institute of British Architects [RIBA]** and asked to co-curate and speak at the 25th annual **Stephen Lawrence Memorial Lecture** held at RIBA on September 20th, 2018.

For more information, samples of work may be provided.

PART II - Work Experience

Historic England

THE VOID

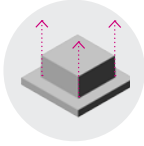
About | Design competition for a proposed memorial in London.

With The Void, we seek to move away from the glorification and worship of individuals and instead focus on collective reflection and remembrance. We propose a move away from monumentalising, and instead seek to exaggerate absence as a reminder of those who so often are left out of history and our memorial landscapes:

Our intervention proposes the inversion of the plinth, where the ground is excavated and fitted with black granite. The contrast of the stark black granite in the middle of the urban fabric immediately calls attention to this space, emphasizing forgotten narratives in British history. This literal cut in pavement acts as a physical reminder of the space that has never been given to minority and marginalized communities both in history and in cities. The proposed excavated space forces people to pause causing a physical interruption in the flow of city life, demanding consideration from the public.

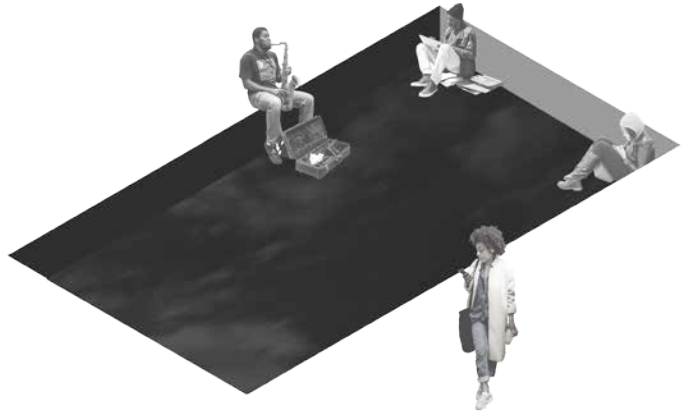
Mapping Monuments in the Area

Plan View

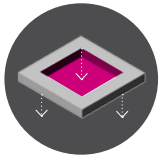


Traditional Monument

Our proposal stands in stark opposition to the traditional male and militaristic style and approach to monuments, and to the importance that is given to them in public spaces in the form of a plinth



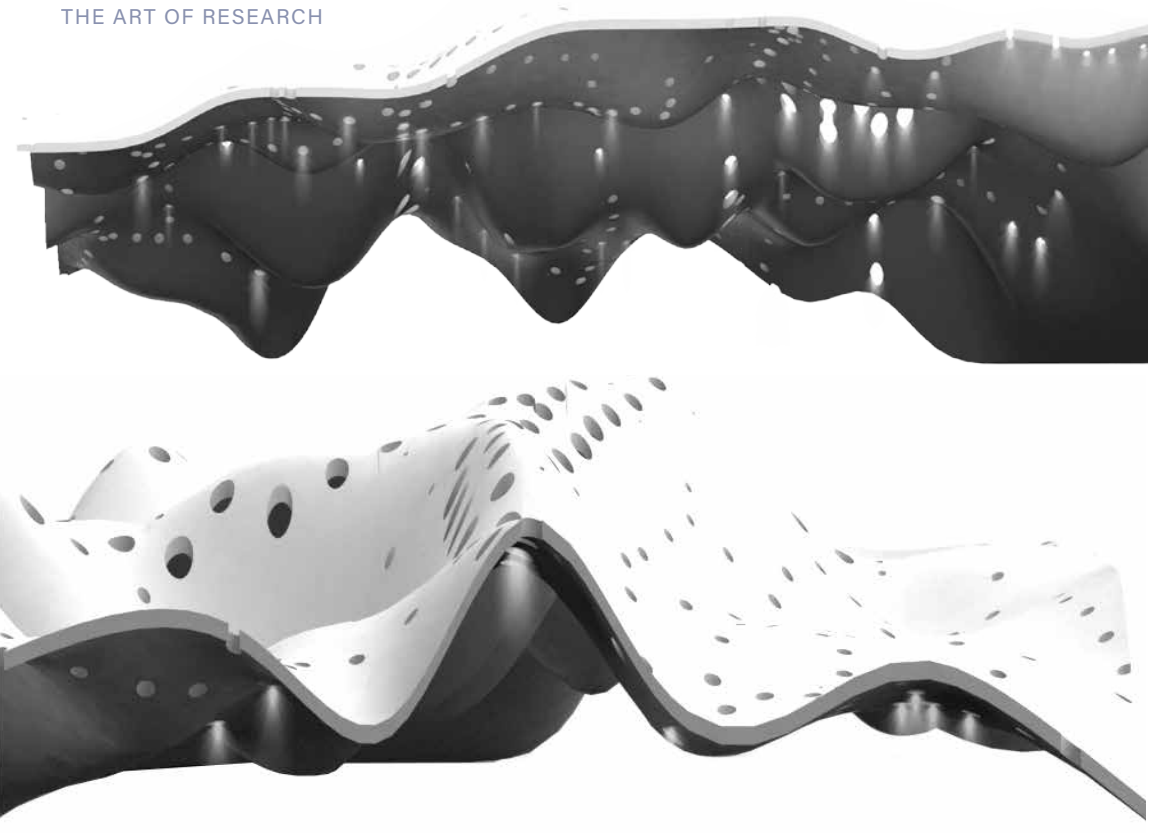
Perspective



Proposed Memorial

Our intervention proposes the inversion of the plinth. By excavating ground rather than elevating a statue we are changing the dynamic of the way people interact with and understand memorial. Rather than a looming figure, the public is provided a new space to occupy and activate.

Section



PART III - Competition

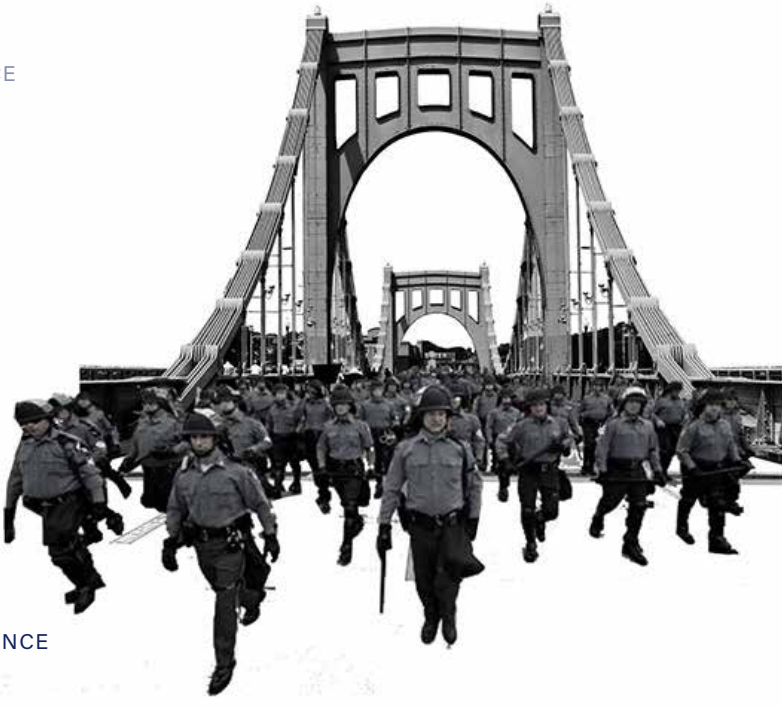
The Doctoral School - The Art of Research - University College London

3D LIGHT MESH

About | In exploring visual perception within the Tower Hamlets and Hackney area, I explored lighting as a parameter affecting our understanding of space. Through analyzing a rich dataset from the two boroughs, this mesh was created to understand the spatial relationship between street lights. The mesh connects points of light based on height, and an angled perforation is extracted based on lighting intensity at a given point. In order to explore the relationship between crime and light, this structure was 3D printed and used in a model to visualize the interaction between the two parameters.

Recognition |
Selected as one of the top 100 images submitted and exhibited in a display at the University College of London.

Skills Demonstrated |
Model Making, Photoshop, Keyshot



PART III - Competition

The University of Manitoba

ATMOSPHERE CONFERENCE

Year | 2015

Authors | S. Abdulrehman, S. Abdulrehman and C. Brock

About | With the theme *Emergence*, The [204] was invited to present a paper that was written titled **Disobedient Spaces, The Aesthetics of Civic Spaces During Times of Protest**. This project is part of an ongoing effort to initiate a 'rapid response' design culture whereby current events in politics and culture are reflected in both theory and design projects. It is about engaging with public spaces in the throes of political struggle, and also to politicize everyday architecture by actively engaging with it through architectural response. This idea was appropriated from the exhibition at the Victoria and Albert Museum in London, England titled 'Disobedient Objects.'

Abstract | This project interrogates the aesthetic and political transformation of civic spaces during times of citizen protest and civil unrest. When divested from their original designed function, these spaces become disobedient as they are used to advance a particular political platform. Disobedience in this case, emerges with the intersection between activist/policing bodies and the spaces that they occupy and appropriate. The architecture of civic spaces become integrated within a citizen's struggle for social change, to their benefit or their detriment. These spaces are instrumentalized as political agents either working in favor of social reform, or in favor of the state. The aesthetic change that these spaces take on become a reflection of human and spatial interaction, where the individual or collective lived experience of a space ultimately determines its broader social and political function. In exploring these ideas, this project uses specific instances of recent political protests such as the Arab Spring and Black Lives Matter movements as precedents in the generation of disobedient spaces. It also interrogates police kettling as a possible reactionary tactic to counter the power and agency of these spaces.

Skills Demonstrated |
Writing, Creative Thinking