



ERASURE

Citation

Wu, Jingyuan. 2024. ERASURE. Master's thesis, Harvard Graduate School of Design.

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ERASURE

A Thesis Submitted to the Department of Architecture
Harvard University Graduate School of Design, by

JINGYUAN CANDICE WU

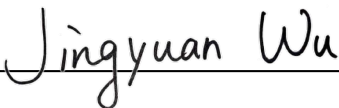
In Partial Fulfillment of the Requirements for the Degree of
[Master of Architecture]

Dec 2023

(Month and Year Thesis Submitted)

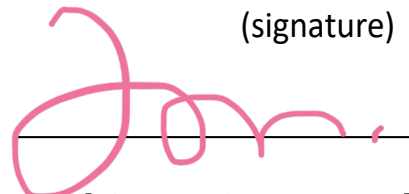
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[Student Name]

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[Thesis Advisor Name]

(Highly Recommended!) Full presentation with videos is available here: <https://indd.adobe.com/view/91547385-b1d6-4288-8065-386d1204e8a1>

Final film available here: <https://vimeo.com/895913831/c7d7389431?share=copy>

A nighttime photograph of a city street. The scene is dimly lit, with a traffic light on the left showing a yellow light. Buildings with various windows and signs are visible in the background. The overall atmosphere is dark and urban.

ERASURE

Candice Wu

GSD M. ARCH 1 GRADUATE THESIS

Statement

Despite technological advances in AR and VR, a clear dichotomy between virtual and real still dominates. Current augmented reality (AR) experiences—characterized by floating UIs and low-poly models—augment rather than merge with our reality, underscoring the need to redefine this relationship. This thesis proposes a new concept of ‘Augmented Reality’ that reimagines the digital and physical as partial contributors to a composite whole, achieving a new balance of interaction.

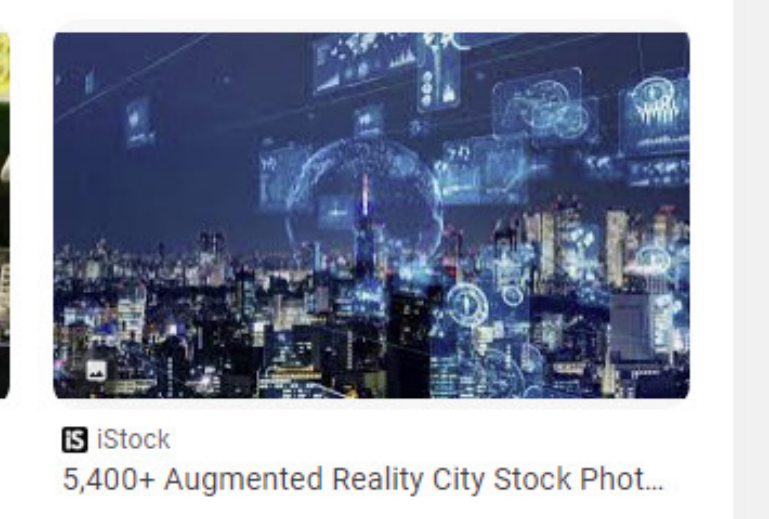
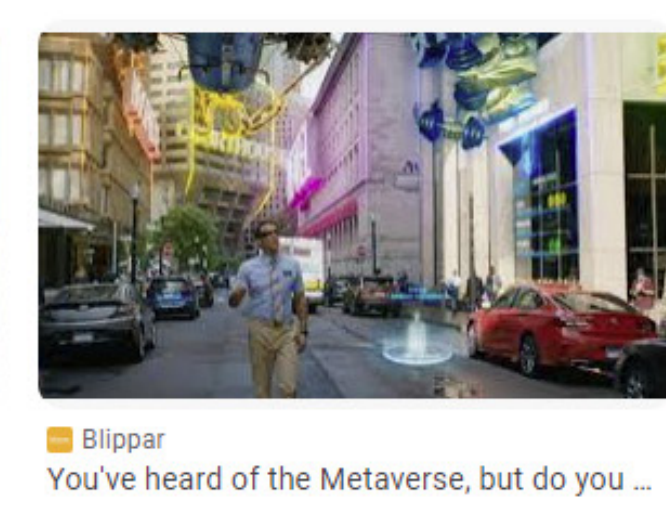
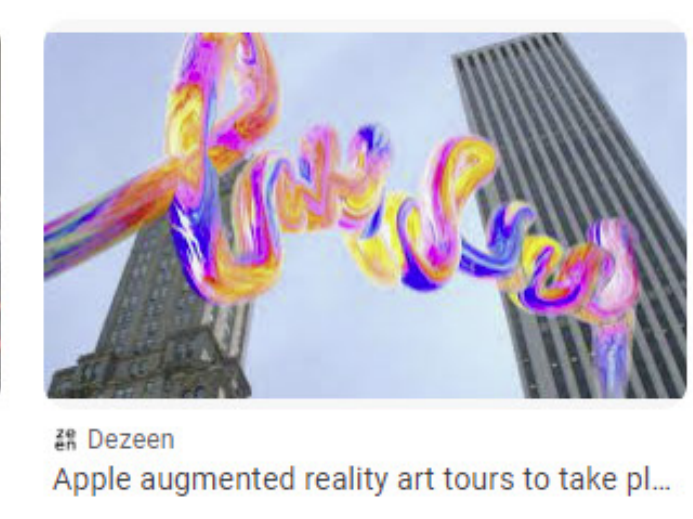
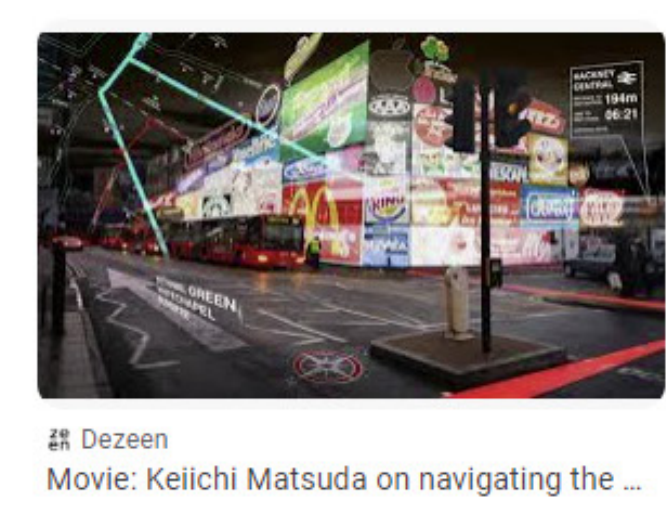
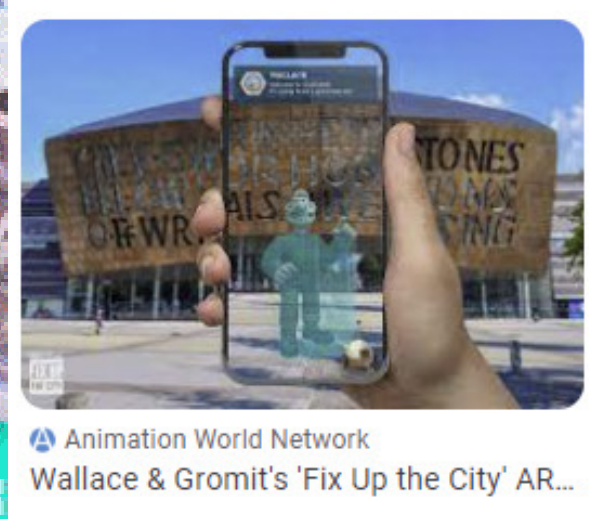
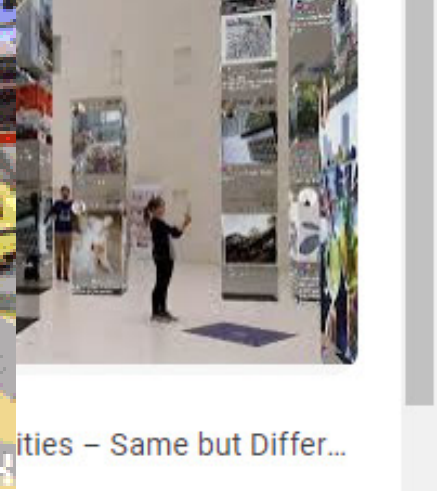
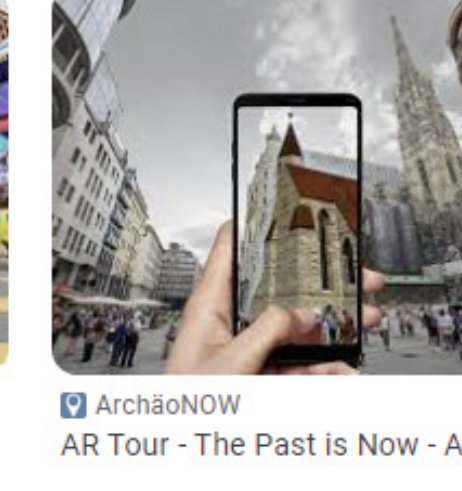
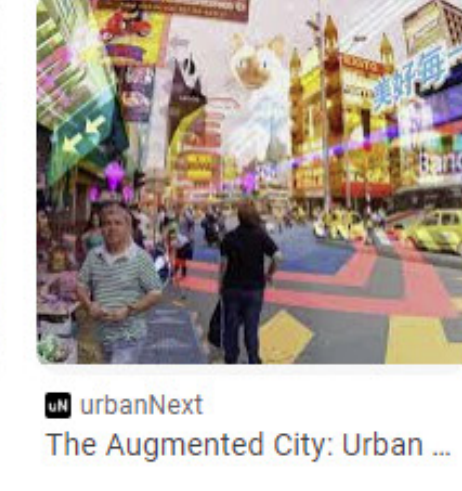
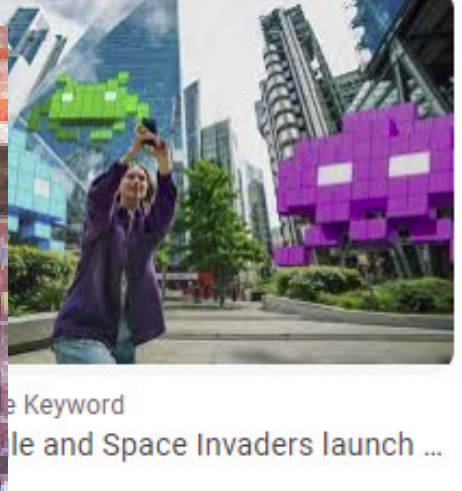
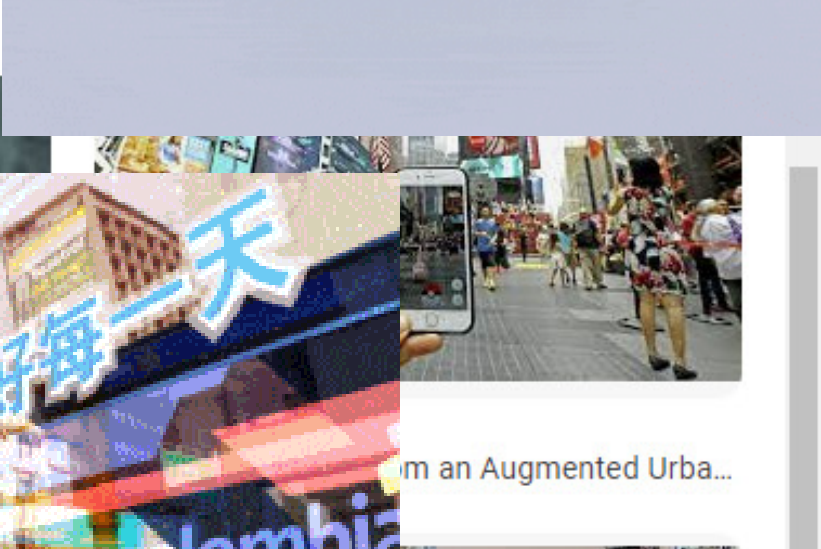
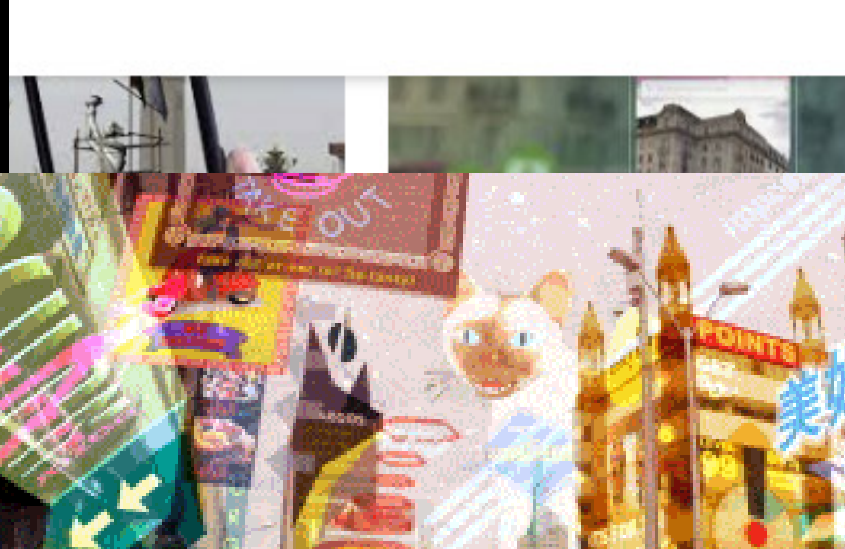
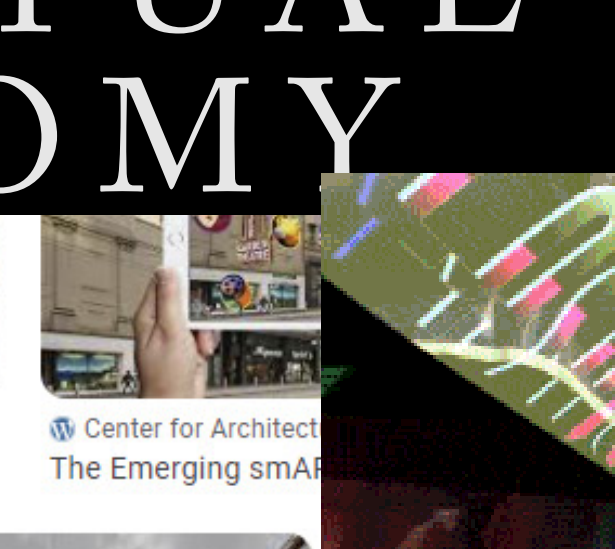
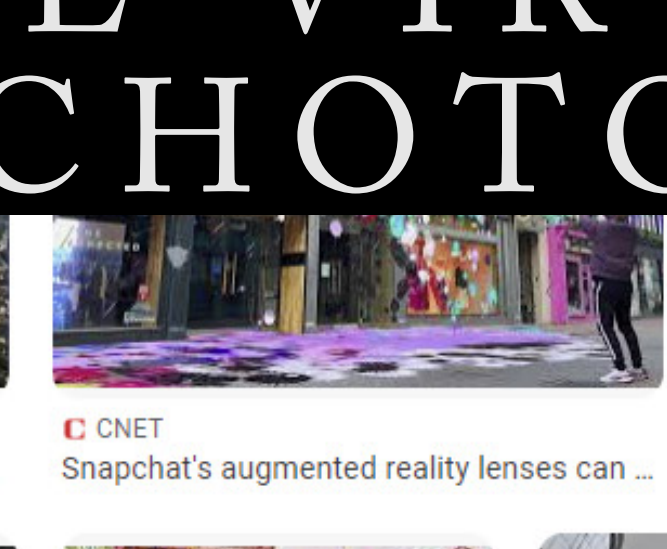
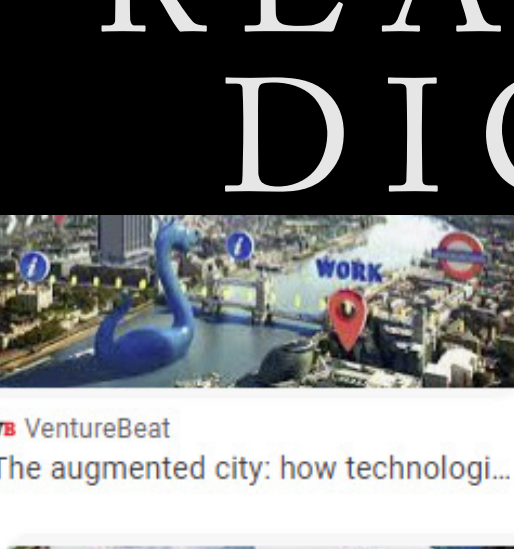
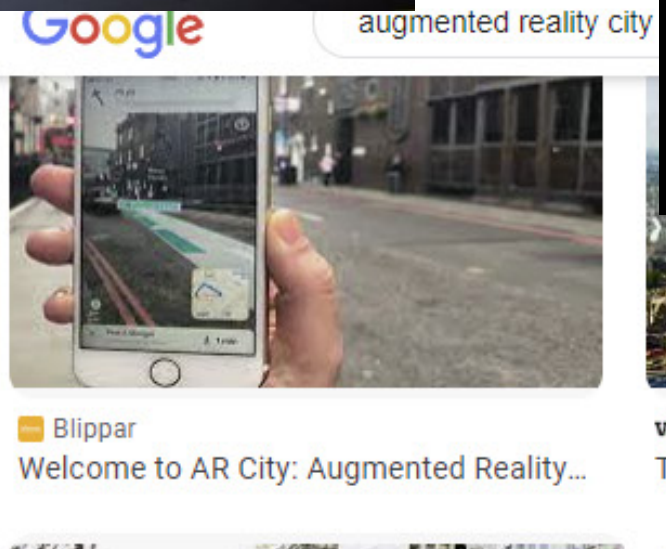
It examines the field of mixed reality, dissecting the persisting divide between the physical and the digital, through a film format. The film, with its world-building, captures the banal lives in a post-augmented city that are often overlooked in sci-fi fantasies. It speculates on the future of urban spaces, envisioning a city where digital augmentations mask physical imperfections, suggesting a shift in the role of physical construction. In this envisioned future, cities become canvases for digital expression, challenging the traditional importance of physical construction details. With occasional glitches, it finds serene purity, capturing both the “aftermath” of the physical space and the emergence of a new augmented urbanism.

“Erasure” is structured around three distinct modes of the city’s existence: Active, Sleep, and Off. These modes represent varying degrees of augmentation, from the vibrant, fully augmented Active mode to the nostalgic, serene Off mode, where digital augmentation is absent. This narrative framework is carried out through multiple perspectives of different moments in the city throughout a day. As the city wakes up, reacts, hibernates and sleeps, it demonstrates how digital and physical elements can coexist and complement each other, rather than existing as separate overlays.

Key to the story is a firework show, where augmentation is powered off and the streets get crowded by people. The show can become a symbolic gesture, unmasking the city’s physical essence beneath its augmented veil. Fireworks, a metaphor for revelation, light up the sky, casting a soft glow that gently reveals the contours and textures of the buildings and streets – the very bones of the city. It is a soulful event, gently unveiling the city’s physical reality. This spectacle, far from dystopian, is a poetic and therapeutic revelation, evoking nostalgia, peace and harmonious connection between humans and the city.



REAL-VIRTUAL DICHOTOMY



The background is a blurred photograph of an interior space. On the left, a window looks out onto a bright, overcast sky and a building with a sloped roof. To the right, a dark wooden bookshelf is visible, with several books on the shelves. The overall lighting is soft and natural, suggesting an indoor setting during the day.

REAL-VIRTUAL
DICHOTOMY



Real



Real + "Add-on"

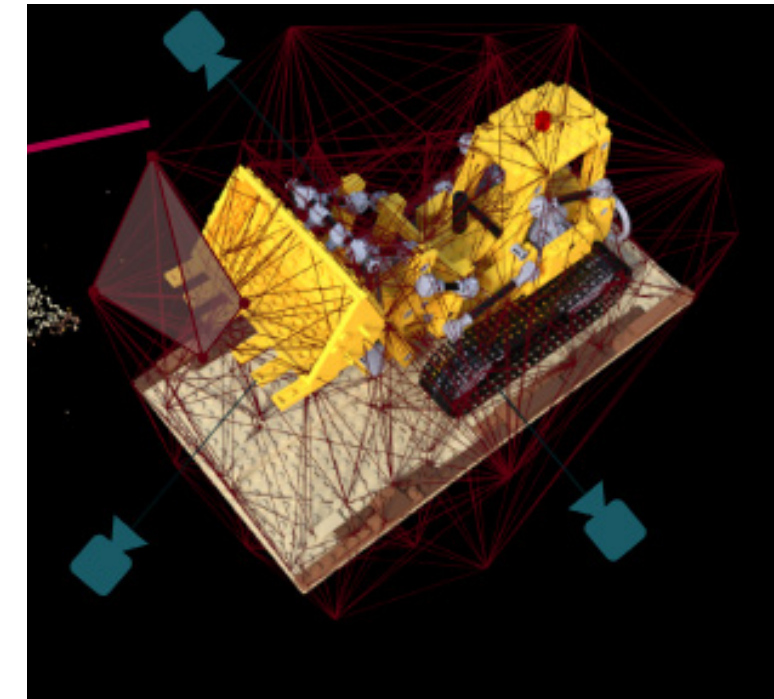
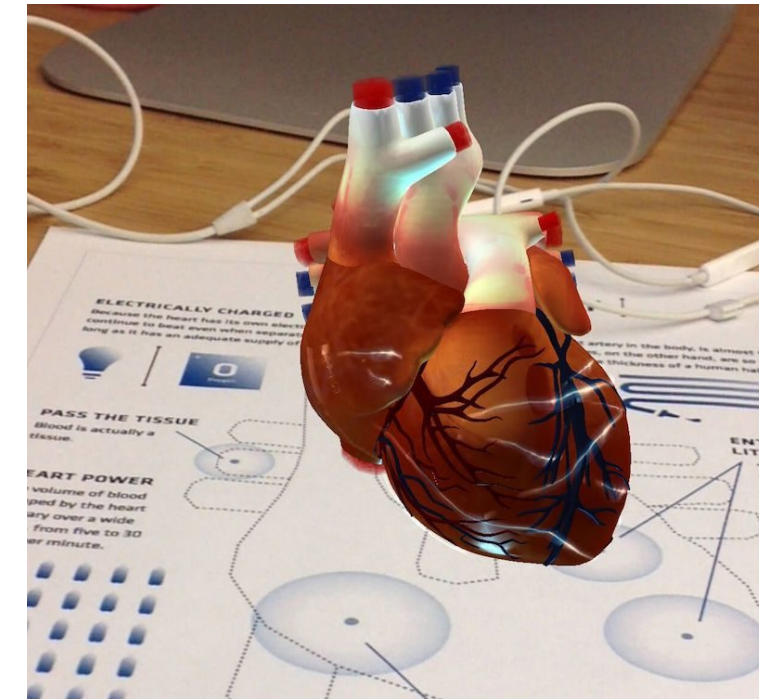
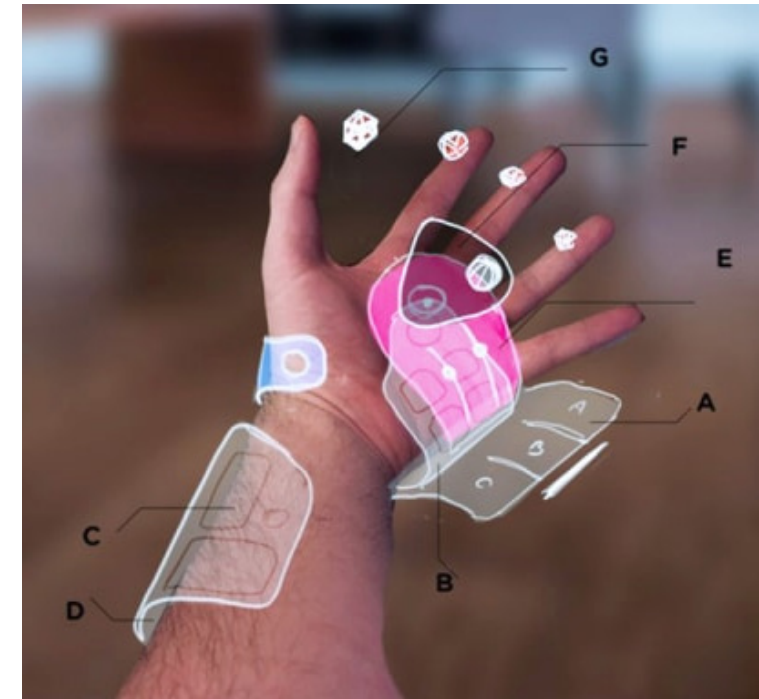
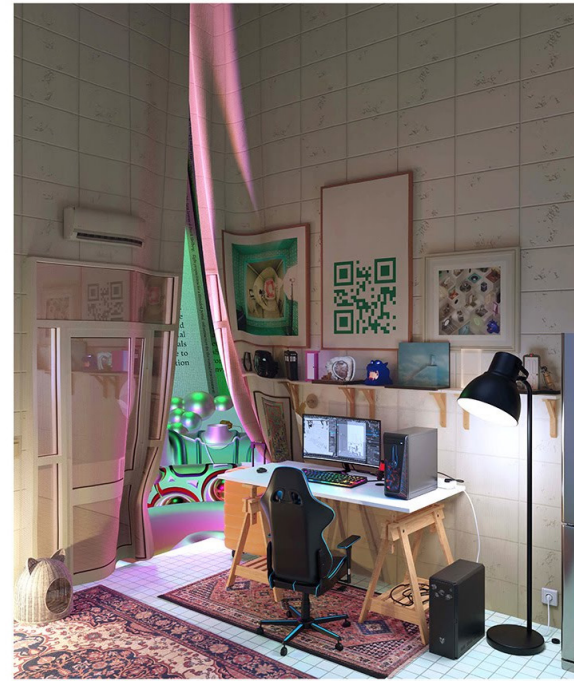
Apple Vision Pro **“SEAMLESSLY BLENDS DIGITAL CONTENT WITH YOUR PHYSICAL SPACE.”**



Apple Vision Pro **“SEAMLESSLY BLENDS DIGITAL CONTENT WITH YOUR PHYSICAL SPACE.”**



AND OTHERS...



IF NOT AUGMENTATION

Augmentation

Noun.

The action or process of making or becoming greater in size or amount.

--> **Becoming more complete**

The process of balancing the two elements of a singular “Augmented Reality” is also the augmentation of the elements themselves. The definition of “augmented” of “made greater, larger, or more complete”, which delivers the sense of increasing its completeness rather than the mere action of adding. It is very possible that the single elements are doing subtraction on themselves to augment the system. In this case, to the single elements, it is NOT pure augmentation. The two elements, to complete each other, require a close look at their complete functions.



Digital – The digital elements are *dynamic, ephemeral, and immediately responsive*. It receives contextual information from the environment and the user's request. Its focus is to provide **VISUAL INFORMATION** (color, texture, light, etc.) to the user with or without certain interplay with a physical entity.

Physical – Physical matter is *static, long-term, and delayed responsive*. It is the **PHYSICAL PROVIDER OF METADATA** for computer vision as well as a **PHYSICAL BARRIER** for haptic feedback to the user. While its form and shape can change as per construction, the transformation would not be as immediate as digital elements, and thus tends to fall to a **generic and modular design**.

Digital – The digital elements are *dynamic, ephemeral, and immediately responsive*. They receive content via information from the environment and the user's request. Its focus is to provide **PHYSICAL INFORMATION** (color, shape, light, etc.) to the user with or without certain interplay with a physical entity.

MATERIAL

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Digital – The digital elements are *dynamic, ephemeral, and immediately responsive*. It receives content information from the environment and the user's request. Its focus is to provide **PHYSICAL INFORMATION** (color, sound, light, etc.) to the user with or without certain interplay with a physical entity.

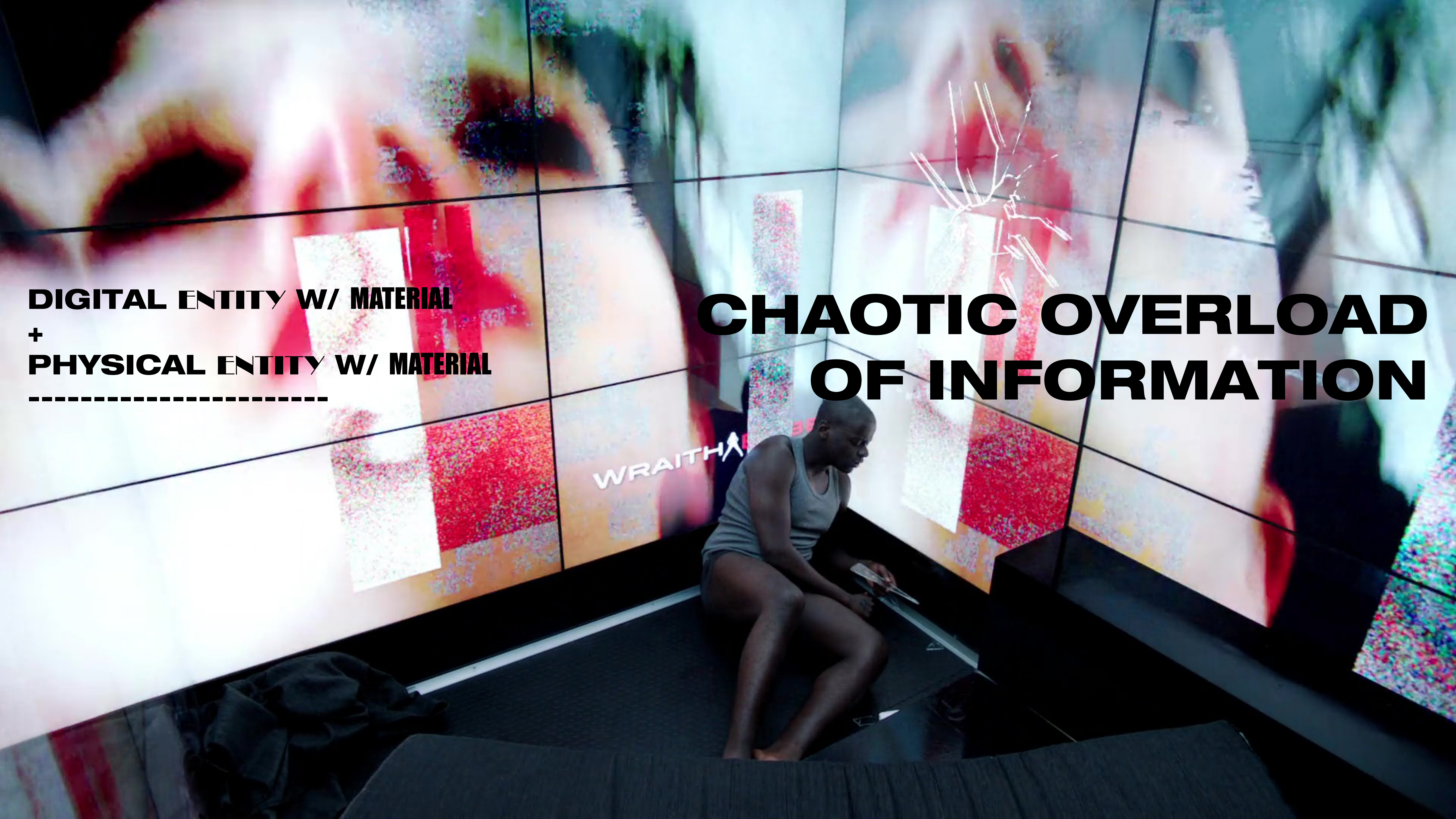
MATERIAL

Physical – Physical matter is *static, long-term, and delayed responsive*. It is the **PHYSICAL PROVIDER OF METADATA** for computer vision as well as a **PHYSICAL BARRIER** for haptic feedback to the user. Its focus is to provide general information per construction, the transformation would not be as immediate as digital elements, thus it is to fall to *generic and modular*.

MATTER

DIGITAL ENTITY W/ MATERIAL
+ PHYSICAL ENTITY W/ MATERIAL

**CHAOTIC OVERLOAD
OF INFORMATION**





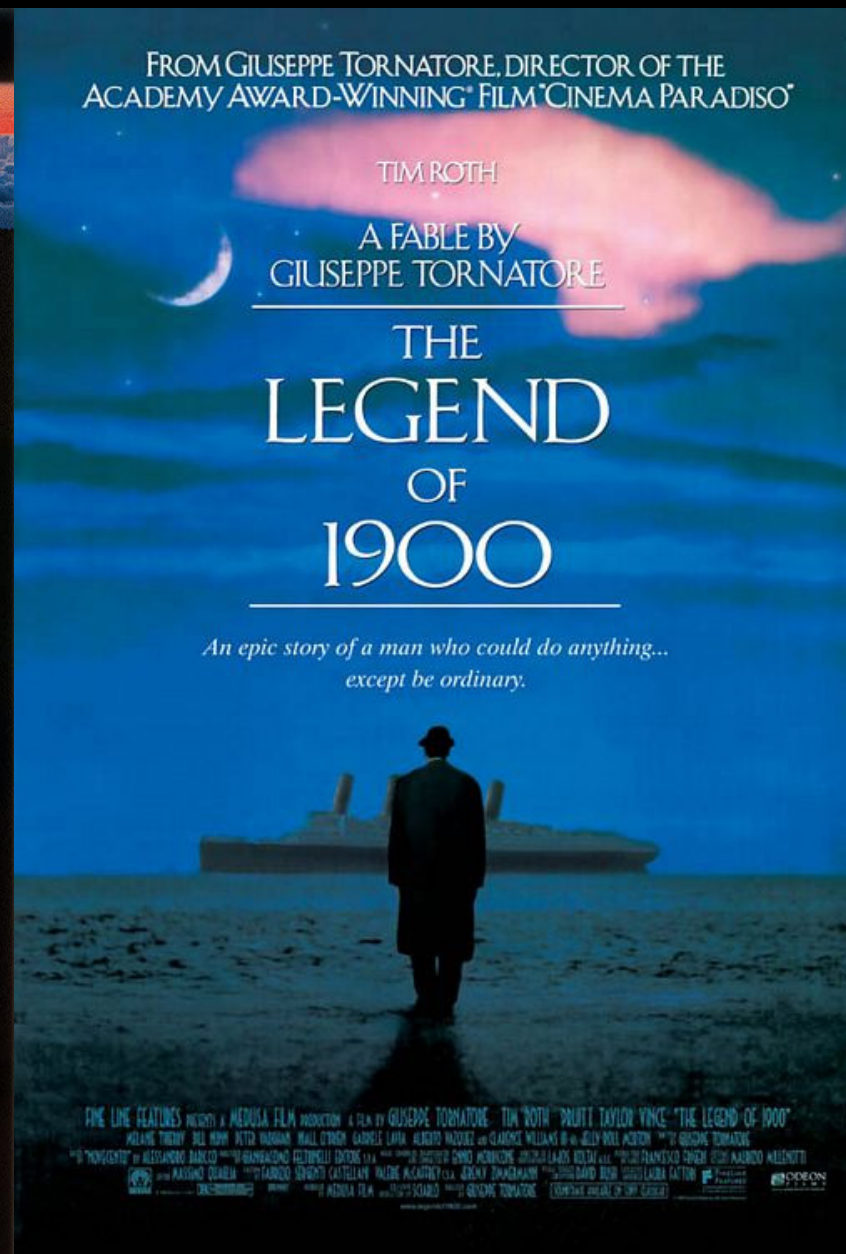
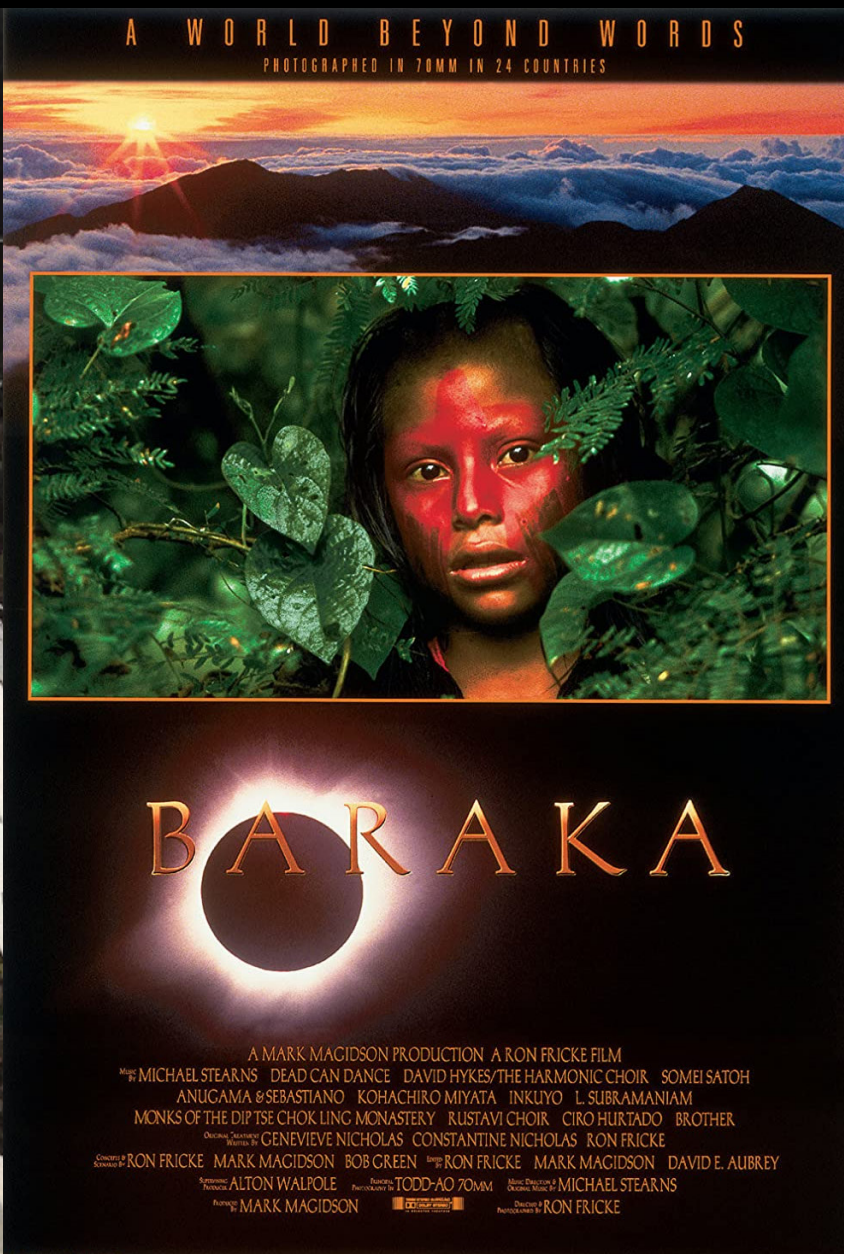
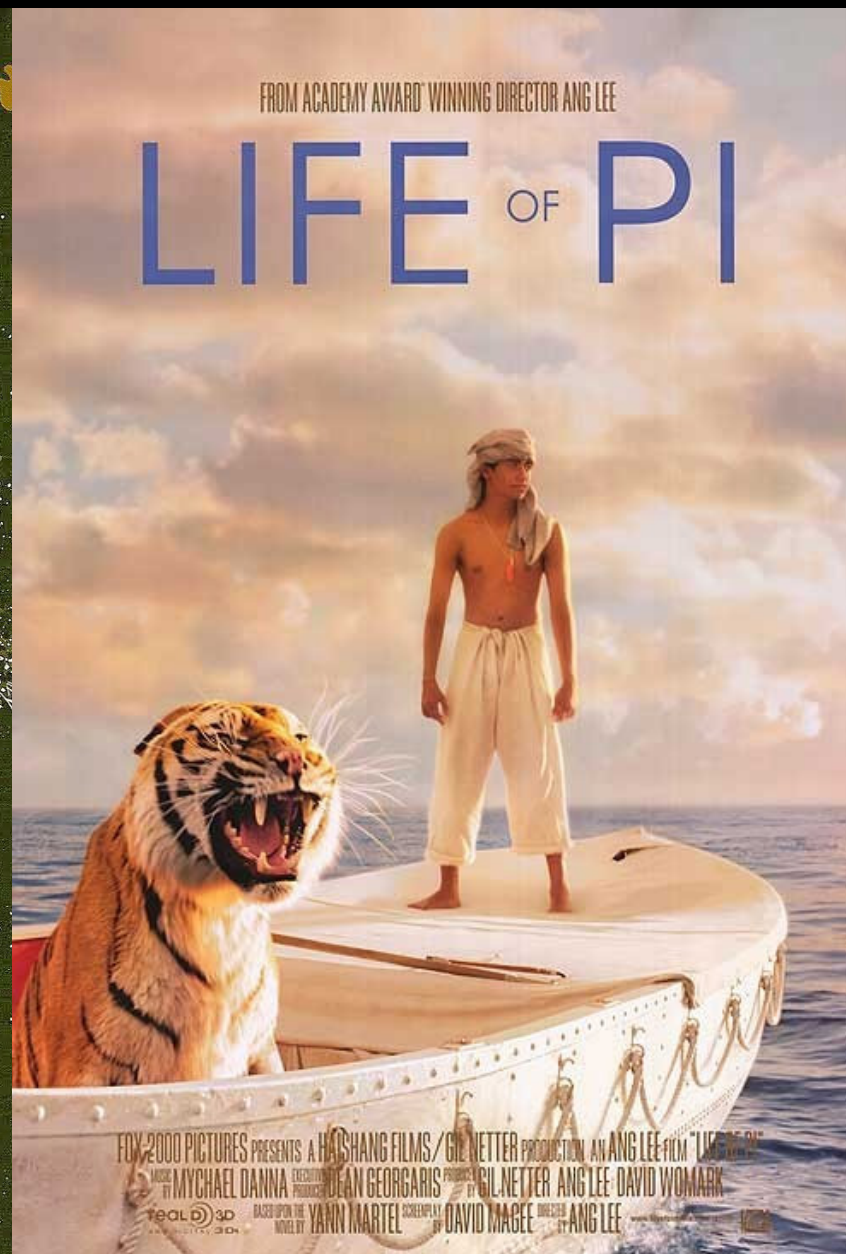
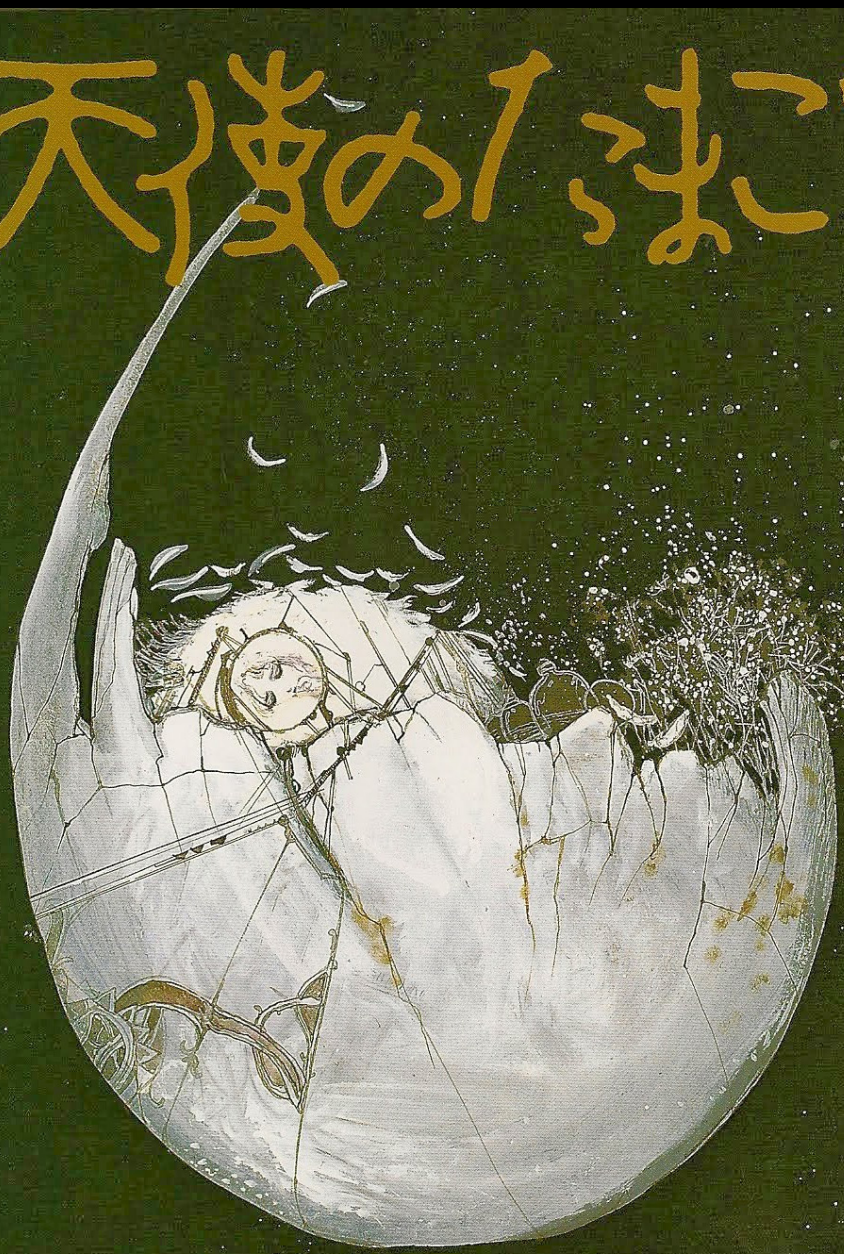
NEW “HARMONIOUS” ENTROPY BALANCE

DIGITAL MATERIALITY
+
PHYSICAL ENTITY



ERASURE

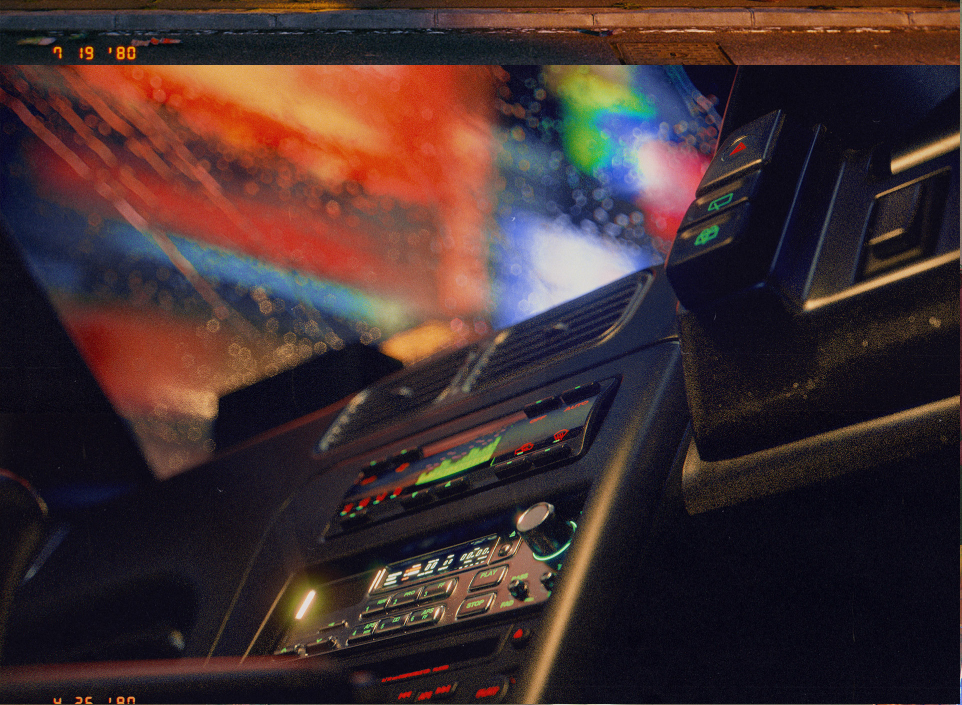
FILM & FICTION





The world's tone with augmented reality will need to be identical to our world, with similar social order and relationships, but occasional indications of technology. It should feel ephemeral.

The world's tone without augmented reality will need to be clean and without any immediate indication of references. It set ups an machine aesthetic that would also be artful but unrecognizable. It presents infrastructure as mega-objects which never shows its totality. The tone is bright

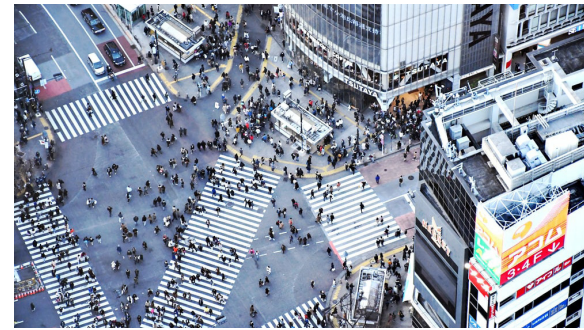


DUAL TONE



05:00 WAKE UP

1% Saturation



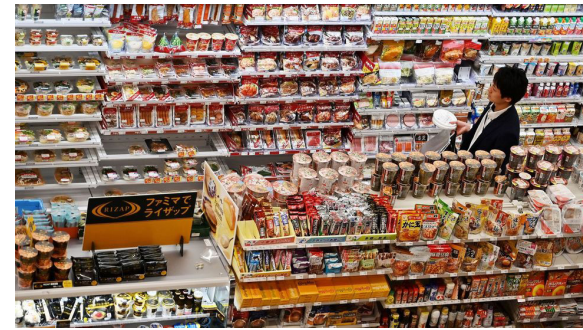
08:00 COLORIZE

80-100% Saturation by PERCEPTION



10:00 GLITCHES

0 or 100% Saturation by PERCEPTION



12:00 BANAL LIFE

100% Saturation by PERCEPTION



16:00 NATURE

50% Saturation by NATURE



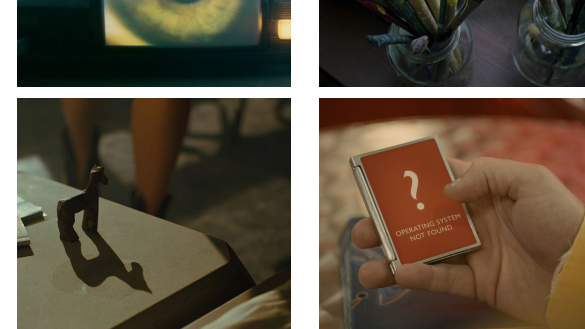
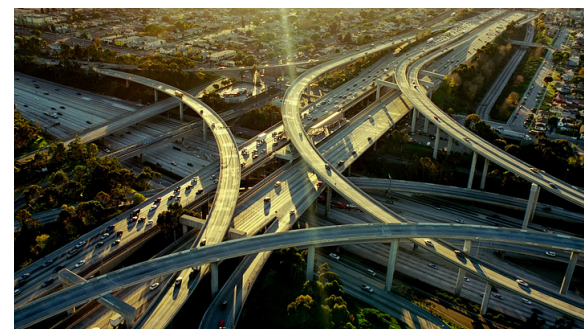
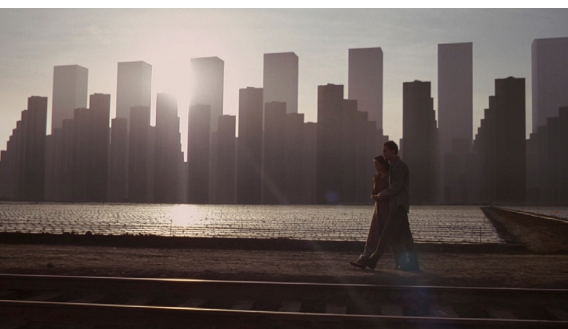
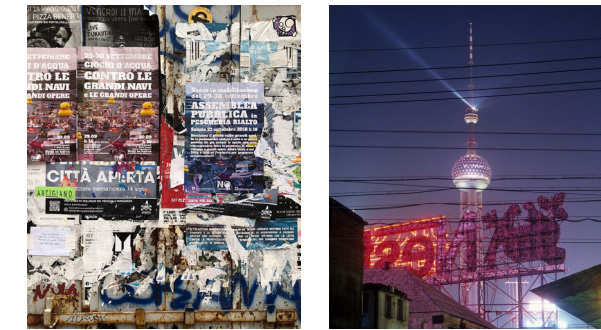
21:00 PREPARATIONS

100% Saturation by LIGHTS & PERCEPTION



00:00 ERASURE

100% Saturation by LIGHTS



TIMELINE

DAY TIME

GLITCHES

DIGITAL MATERIALITY

NIGHT TIME

ERASURE

PHYSICAL SPATIALITY

CONSTRUCTION OF DIGITAL MATERIAL



Surficial Material



Volumetric Material



Spatial Material

CONSTRUCTION OF DIGITAL MATERIAL

SURFICIAL

#BEAUTY #METALLIC #SPECULAR #ROUGHNESS #ANISOTROPY #EMISSIVECOLOR #OPACITY #OPACITYMASK #NORMAL #TANGENT #DISPLACEMENT #SUBSURFACE COLOR #AMBIENTOCCLUSION #REFLECTION #REFRACTION #IOR



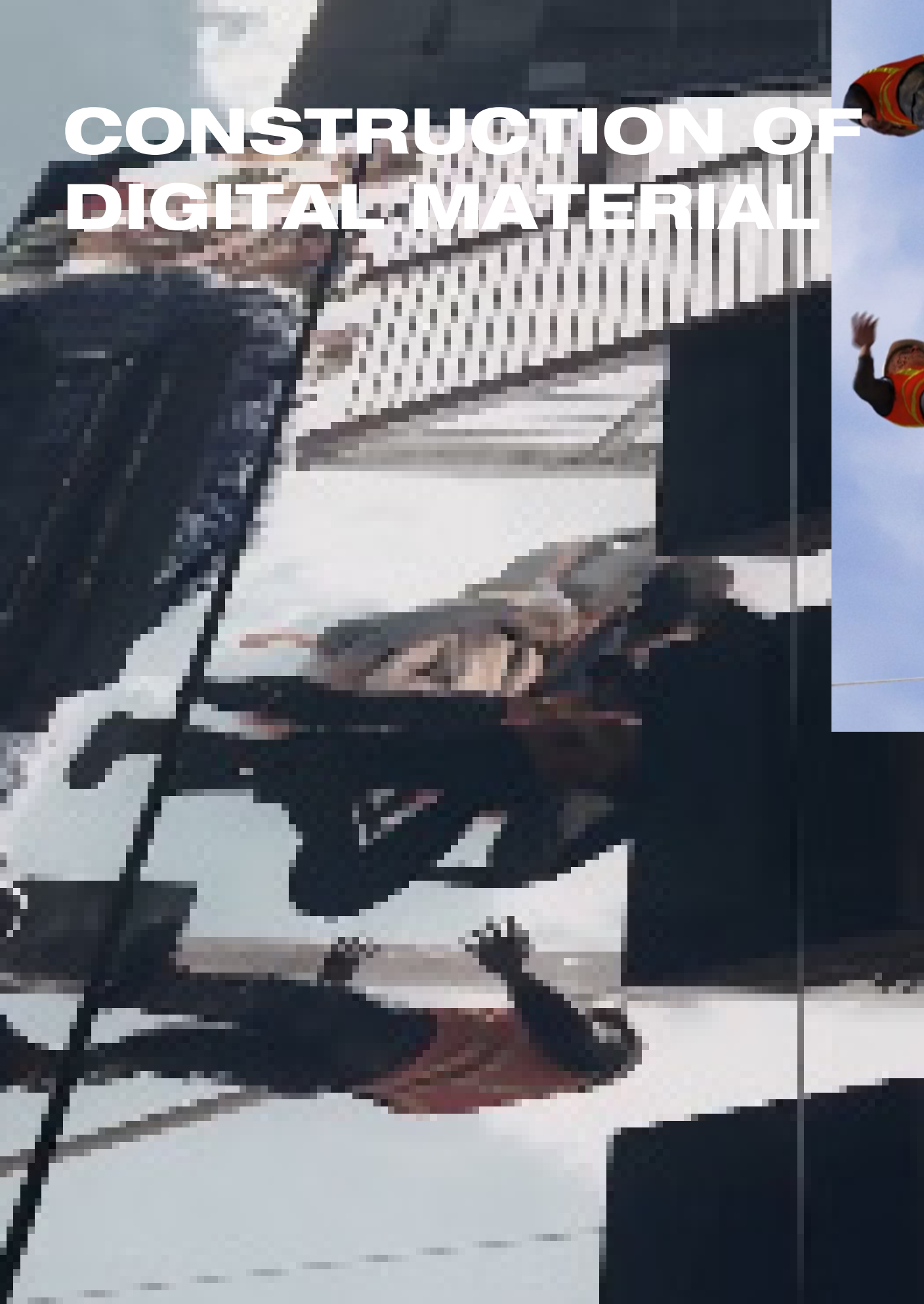
CONSTRUCTION OF DIGITAL MATERIAL



VOLUMETRIC

#WIND #MOISTURE #DUST #SMOKE #FLOCKS #WAVES #RIGIDITY #MASS #RESOLUTION #VISCOSITY #SCATTERING #DENSITY #SPEED #TEMPERATURE #BRIGHTNESS #GRAVITY #FORCES

CONSTRUCTION OF DIGITAL MATERIAL



SPATIAL

#DEPTH #ORIENTATION #PERSPECTIVE #PROJECTION #SEAM #TROMPE-L'ŒIL #

CONSTRUCTION OF PHYSICAL SPATIALITY

SURFACE LANGUAGE + CITY OF RENOVATION

The renovated city parts are memory piles of used objects. Since AR require only unique images or feature point combinations as reference, any unique composition can be used. The renovation is the act of taking old city into parts and mix together the ruins with a coat of lamber1. The bumpy surface would serve as the 3D calligraphy.

This type of language is not universal. Each region will have to upload the unique images to the server to make it universal, failure to do so will result only in local recognition. The object themselves has a culture background, and their limitation in spreading also results its localness.





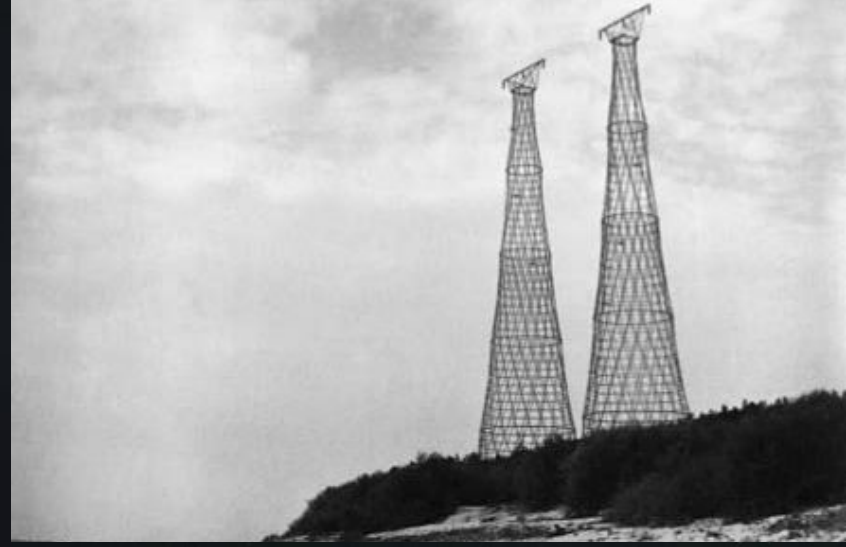
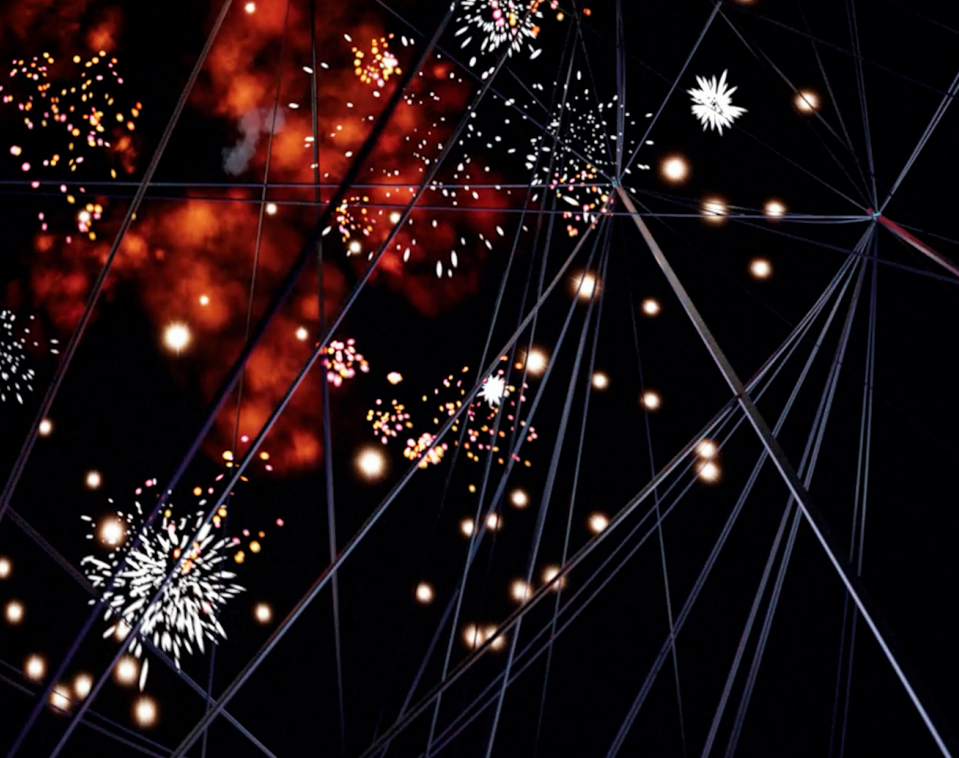
CONSTRUCTION OF PHYSICAL SPATIALITY



Physical space pays high attention to haptic feedback, and thus around where people can touch, materiality under disguise aligns with its augmentation. Places beyond human access are left to be unfinished. This creates a vertical gradient for the REAL built environment.



VERTICAL GRADIENT + HUMAN ACCESSIBILI-



A VIRTUAL BANAL + A PHYSICAL UNIQUE

