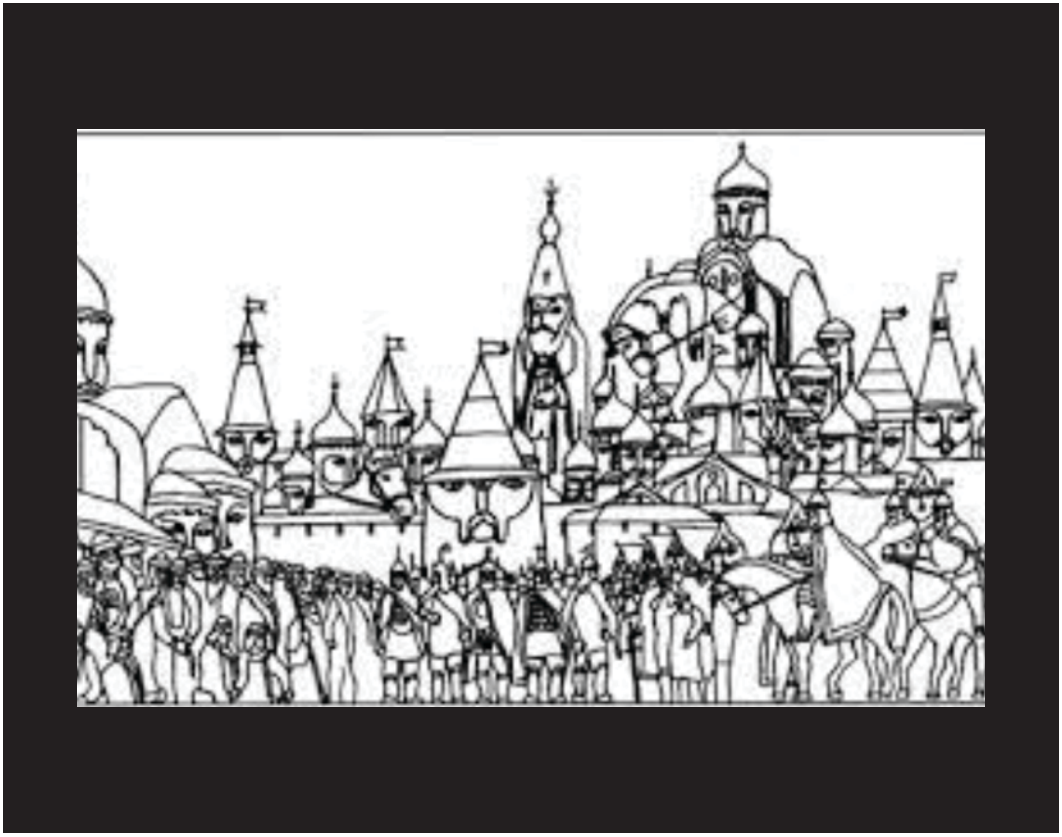
BARA



Pareidolia
Pará: παρά, "beside, alongside, instead [of]") and eídōlon: εἴδωλον, "image, form, shape"

is the tendency for perception to impose a meaningful interpretation on a nebulous stimulus, usually visual, so that one sees an object, pattern, or meaning where there is none.

Our perception is a continuously active and evolving process. While looking at something, our brain create some matches with already known concepts. Neural brain plasticity and memory play an important role in this associative process. It allow the brain to process quicker the incredible large amount of data that he receives. CHE
One of the most common phenomenon is called the Face Pareidolia, which occurs when we see faces in objects and forms that are not related to actual human. This phenomenon can extend to other forms than face as we can relate when looking at the cloud and seeing all kinds of creatures. [1]

When seeing a face, neurons located in the fusiform face area will get activated. This brain region is characterised by its role in the facial recognition process and is located in the fusiform gyrus, which serves more general recognition processes. [2]

While looking at a real face or at an image with facial features, the observer will have mirror neurons activated in the same brain region. However it has been discovered that the laterality of the brain serves a role in the difference of perception between normal faces and false facial perception.

This extremely fast process happens in the very early stage of image processing. That could be explained by the importance it had for human survival. As a social species, the capability to quickly recognize a friend from a foe as well as their emotional state needs to be instinctive.

Associations with known shapes and concepts can have a very strong emotional impact. CSC

What role could architects play in the quest to a better understanding of our emotional processes ?

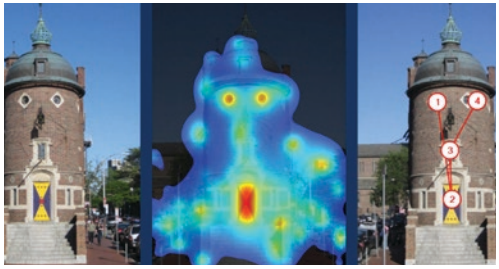


Fig. 01. Analysis of the gazing path of an observer. We can observe to importance put on the facial features and secondly on the zones with high contrast. [4]

Fig. 02. The positions of stones creates a shadow which reveals the face of a woman.

BARA. *Panoramic view of the city center of Pskov.* Alexander Baranov (2020)

[1] *Sussman, A., & Hollander, J. B. (2015). Cognitive architecture: Designing for how we respond to the built environment. Routledge.*

[2] *(2022) Pareidolia. Wikipedia. https://en.wikipedia.org/wiki/Pareidolia*

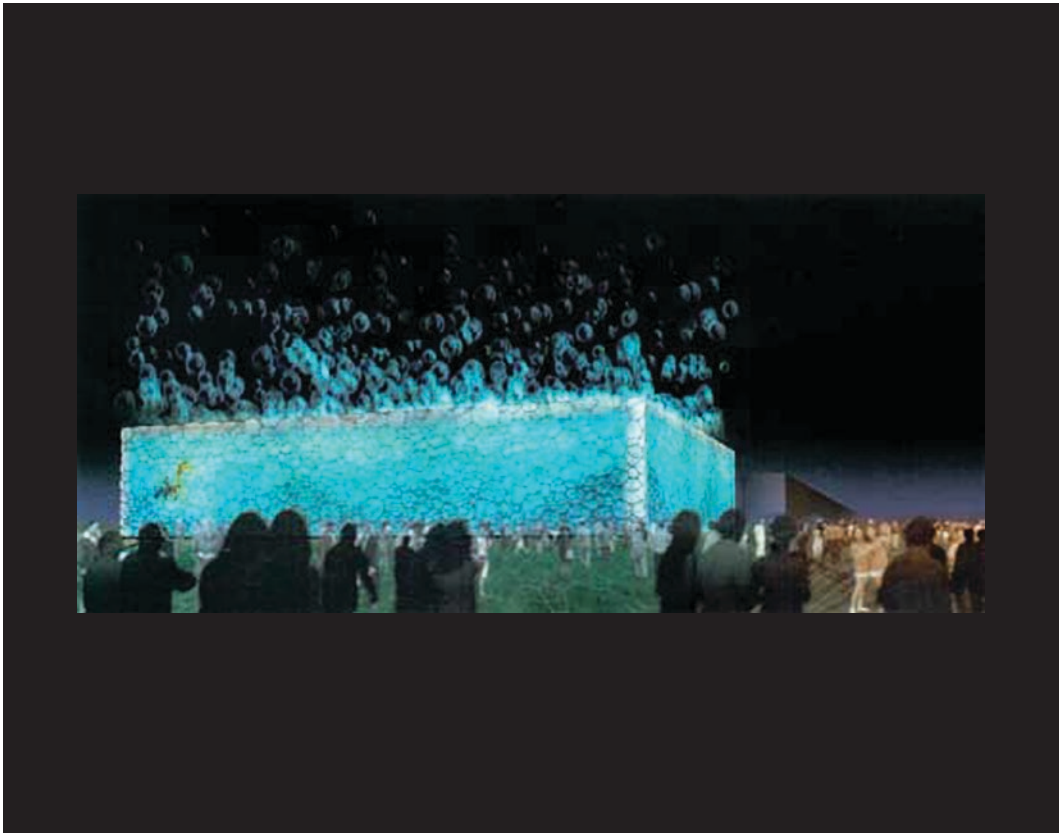
[3] *Meng, M., Cherian, T., Singal, G., & Sinha, P. (2012). Lateralization of face processing in the human brain. Proceedings of the Royal Society B: Biological Sciences, 279(1735), 2052-2061.*

[4] Ann Sussman & Janice M. Ward (2020). *Empathy in Design: Measuring How Faces Make Places. Archdaily. https://www.archdaily.com/942916/empathy-in-design-measuring-how-faces-make-places*

Fig. 01. Harvard Lampoon building, M Wheel wright (1909).[3]

Fig. 02. Niğde Alaaddin Mosque Rehentiae, Sıddık (1223).[1]

CSC



“The storytelling mind is allergic to uncertainty, randomness, and coincidence. It is addicted to meaning. If the storytelling mind cannot find meaningful patterns in the world, it will try to impose them. In short, the storytelling mind is a factory that churns out true stories when it can, but will manufacture lies when it can’t.”

Jonathan Gottschall

We are meant for storytelling. Our narrative abilities differentiate us from the other species. In every age, place and culture, narrative is rooted.

This characteristic is anchored within us, and represents an important asset in our evolution and survival as a social species. From a more generic point of view, it allowed us to develop social cooperation, to share our knowledge through generation, to create social norms and to find partners. [1]

Our capacity to narrate is more than just a bridge from ourselves to the others, it also allows us to have a sense of our own self.

"You are what you think, [..] you are because of the way you are enabled to create, remake, and remember stories." [2] - Ann Sussman

In the development of this notion of the self, our relation to the environment is crucial. We need to be able to connect and make an attachment with our surroundings.

Our mental image is a mental construction that we apply to memories, concepts, ideas,... It plays an essential role in our learning process. This mental image is mainly based on our sensorial perception and on our imagination. [3]

When a story is shared, it will inevitably move from one mental representation to another, as each individual has its very personal mental map. Even though it is based on personal experiences, our imagination and sensorial sensibility are strongly linked to a social and cultural dimension. AND

How much should the architect be involved in the creation of a particular narration and what should be left to the user interpretation?

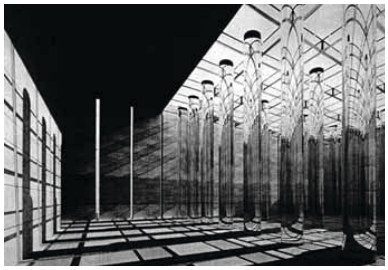


Fig. 01. A project can be the physical representation of a population' s beliefs, culture and history.

Fig. 02. Personal belief and imagination of the architect can be narrated in architecture.

CSC. *PTW,Beijing*. CSCEC + PTW + CCDI and ARUP (2004-07)

[1] Kluger, J. (2017). How Telling Stories Makes Us Human. Times. https://time.com/5043166/storytelling-evolution/

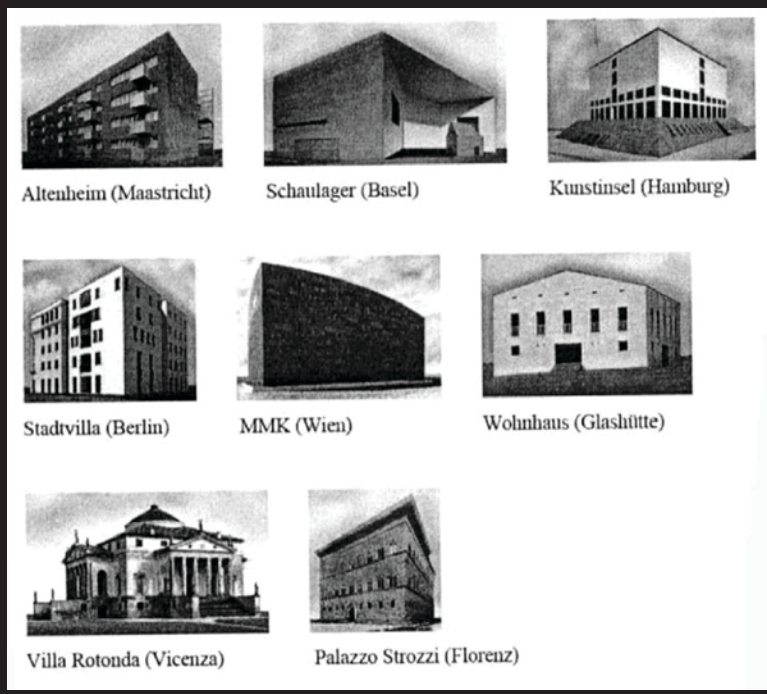
[2] Sussman, A., & Hollander, J. B. (2015). Cognitive architecture: Designing for how we respond to the built environment. Routledge.

[3] (2021) Mental image.Wikipedia. https://en.wikipedia.org/wiki/Mental_image

Fig. 01. Danteum, G. Terragni (1938).

Fig. 02.The City of the Captive Globe Project, R. Koohlaas (1972).

WEB



*"Scale is not the same thing as size; scale is **relative size**, the size of something relative to something else."*

Charles Moore

Decontextualizing a building may give us information about its inherent quality. The proportion and internal scale of the building could be read without being influenced by the surroundings elements.

In studies carried at Dresden University[1], researchers analyzed the estimation of building sizes related to their inner-scale. Two observations have been made concerning: 1. ***scale relative to the whole*** and 2. ***scale relative to usual sizes***[2]. Both could be understood by the associative process with familiar architectural elements.

1. People tend to struggle with height estimation of buildings with less horizontal subdivisions of known elements. Stratification is thus important for dimension estimation.
2. An overestimation of the building height is observed when a familiar element of the building is bigger than the one we are usually confronted to.

For their last hypothesis, they focused on the horizontal-vertical illusion,. They tried to check whether an overestimation of the size of a building was observed when using more vertical elements. Even though this hypothesis was not conclusive it triggered our curiosity on what could this illusion teach us on our visual perception.

We learned that, although visual illusions are quite universal, people from highly developed cities tend to perceive this horizontal-vertical illusion very differently from people that were not confronted to modern cities. It could be explained by our adaptiveness to our environment. Our exposure to a particular type of environment have influenced our perception of the three-dimensional world.[3] ESC

Architectural elements have the power to disturb our perception of scale. Could this distorted visual perception be used in the emotional interpretation of the building ?

Fig. 01. This basilica is often perceived as a trick of scale. Compared to its size, its elements seem to be of perfectly dimensioned. But individually all these elements are monumental.

Fig. 02. Horizontal-vertical illusion. When a vertical element intersects a horizontal element of the same size, the vertical line appears much longer to us.

WEB. *Matrix of stimuli, experience 3*
Weber and Vosskoetter (2008)

[1] Weber, R., & Vosskoetter, S. (2008). The Concept of Scale in Architecture—Three Empirical Studies. Empirical Studies of the Arts, 26(2), 219–246.

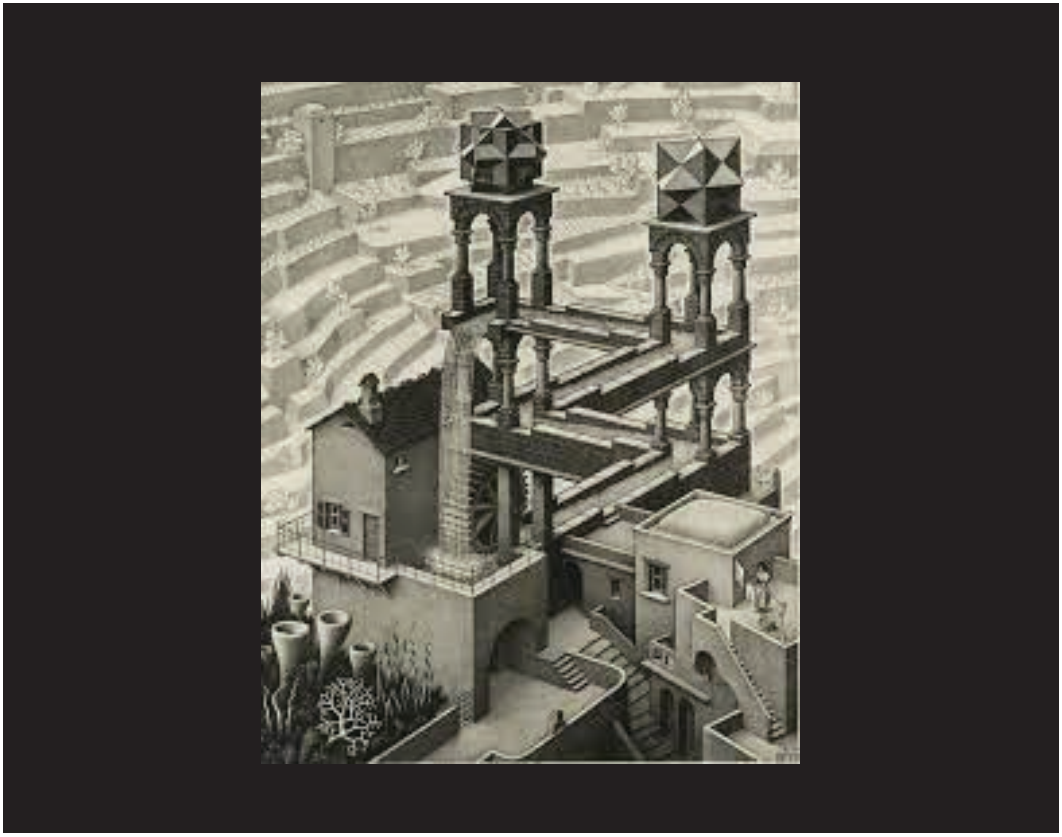
[2] Moore, C. W., & Allen, G. (1976). Dimensions: Space, shape & scale in architecture. Architectural Record Books.

[3] Masuda, T. (2009). Cultural Effects on Visual Perception. University of Alberta.

Fig. 01. Peter Basilica Vatican. (1506-1626). [2]

Fig. 02.(2021)The horizontal-vertical illusion. Wikipedia. https://en.wikipedia.org/wiki/Vertical%E2%80%93horizontal_illusion.

ESC



“ I like when you feel like you arrive in a very different place, with a differen ordering of the reality you normally think of.”

James Turrell

Depth is a perception. The cues to build this perception are numerous. But they can be categorised by a combination of binocular and monocular informations.

Binocular informations are using visual information from both eyes. One of the phenomenon is called Stereopsis. In order to get an indication on the objects allocentric position in space, the information of both eyes is compared to obtain the horizontal difference in the position of the perceived objects. [1]

The monocular one are using two dimensional informations that can be gathered by only one eye, to create an interpretation sense of depth. This interpretation is used, among other things: linear perspective and interpolation, color and contrast, and motion parallax. The motion parallax is the process of moving our head closer or further from the objects in order to interpret the speed of the motion for each object. This gives us cues on their spatial position. [2, GIB]

Monocular cues used for depth perception are sometimes the cause of misleading interpretations. As a three dimensional interpretation is applied to two dimensional elements, it leads sometimes to visual illusions.

As in the horizontal-vertical illusion it has been observed that people who grew in more flat and round environment tend to have a different relation to depth illusions, which would imply that the development of depth perception, as all perceptions, is shaped by experiences. [3, WEB]

Depth tend to be an outcome of architectural design, could it be used more as a tool?

Fig. 01. Since the renaissance, artists used optical illusions to give the impression of a bigger. And to create false openings in enclosed spaces.

Fig. 02. Although both figures have the same size, the one to the right seems bigger since it is perceived as further.

ESC. *Waterfalll*
Maurits C. Escher (1961)

[1] Bedinghaus, T. (2020) How Depth Perception Works. https://www.verywellhealth.com/depth-perception-3421547

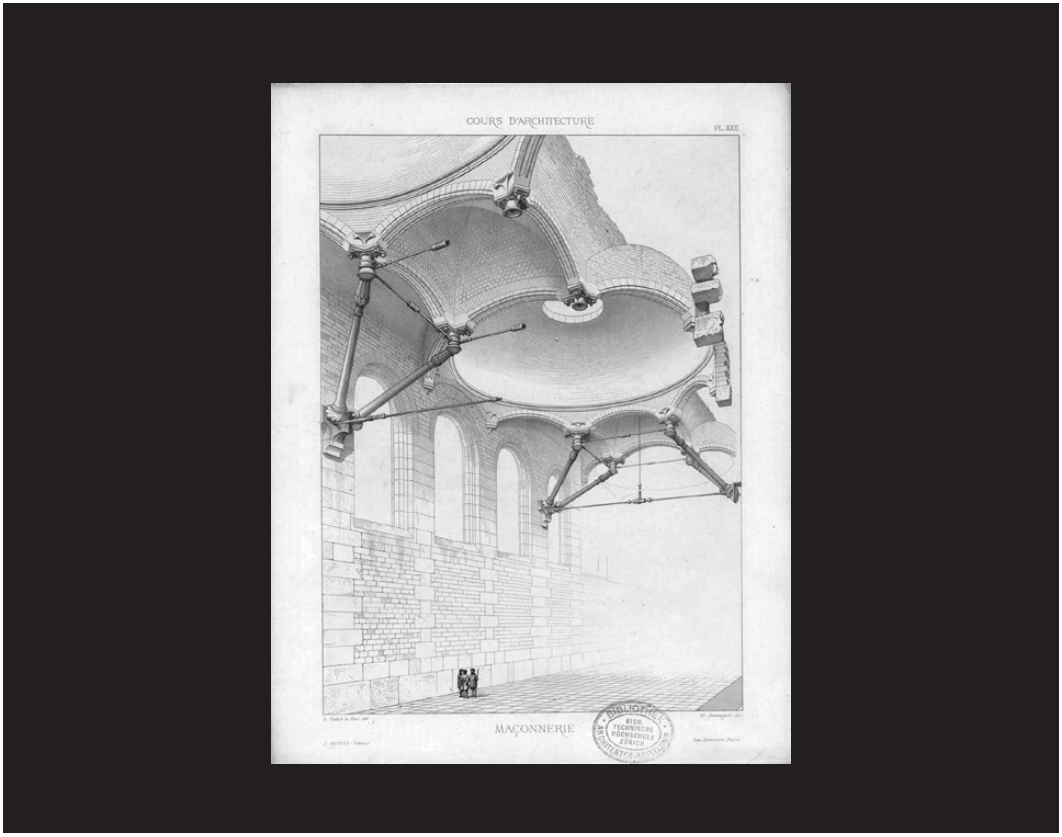
[2] (2021) Depth perception .Wikipedia. https://en.wikipedia.org/wiki/Depth_perception

[3] Masuda, T. (2009). Cultural Effects on Visual Perception. University of Alberta.

Fig. 01. Ceiling of the Treasure Room of the Archaeological Museum of Ferrara, B. Tisi (1503-1506).

Fig. 02. Photo by John Picken and collage by Filipp Schmidt (2015). Ponzo illusion, https://www.researchgate.net/figure/Illustration-of-the-Ponzo-illusion-Classical-Ponzo-illusion-in-which-the-size-of-two_fig1_273639944.

VIO



"Details, when they are successful, are not mere decoration. They do not distract or entertain. They lead to an understanding of the whole of which they are an inherent part."

Peter Zumthor

When we look at a scene, our brain processes the information that he receives. But due to the enormous amount of data we are facing, we are limited with the speed processing of the visual image.

We will first get a global understanding of the scene. This process is very fast. But if you want to collect a broader, more detailed, understanding of what is actually happening it takes more time. [1]

We actually see only a fraction of our visual field in high resolution, the rest is our peripheral vision. STO
The visual attention will allow us to filter the information about the physical space and categorise it. In terms of evolution it allowed us to identify quickly subject of interest to adapt our behaviour.

This attention will be driven either by recognition or by selectivity, both working together. In other words, it will be activated either by the reception of a stimulus given by a salient object or driven by a certain intention of the viewer.

This visual attention plays a major role in our comprehension of space. The architects have the possibility to attract the viewer attention to some very precise aspects of his design. He also has control over the speed that the visitor will take to understand the space. MIE

We should not minimize the impact that geometrical tools as symmetry, axes, focal points, repetition can have in directing the viewer attention. [2]

Which design tools could the architect use to improve the visual curiosity of the visitor?

Fig. 01. Our attention can be affected by other contextual elements. When representing the architectural experience, the building does not always have to be the main subject.

Fig. 02. As we move closer to a building our attention will move back and forth between global features and details.

VIO. *Composition in masonry and iron*
Eugène Viollet-le-duc (1863)

[1] *Johnson, J. (2010). Designing with the mind in mind: Simple guide to understanding user interface design rules. Morgan Kaufmann Publishers/Elsevier.*

[2] *Michal, A.J. (2014). The Role of Visual Attention in Architectural Design. ANFA. https://www.youtube.com/watch?v=AL2u2dnsGnk*

Fig. 01. Octagon House, Pierre D'Avoine Architects (2006).

Fig. 02. Distance and Detail, León Krier (2009).

SCH

“The shadow gives shape and life to the object in light. It also provides the realm form which fantasies and dreams arise.”

Pallasmaa

Shadow is inseparable from light. We see light as strongly qualitative, and the shadow is too often considered as just an outcome of the use of light.

The darkness has the ability to blur our vision. This gives the possibility for the arousal of our imagination, and our “tacile fantasie” as pallasmaa would say. [1]

This game between light and shadow brings our vision out of focus, it forces the eye to wander in space. This unfocused gaze will allow our mind to lose itself in his fantasy because of the ambiguous visual image it is creating. It also invites the visitor to go discover the space around with his other senses. HOL

In a more practical way, contrast in a visual scene is essential for our depth perception.
We can identify two kinds of contrast that influence our sense of depth. The first one is the internal contrast of an object, the one created by its texture. The second contrast is between the selected object and its background.

In both cases, the lower the luminance difference is, the further the object seems to be from the observer. That could be explained by atmospheric optics. The further away we stand from an object the more air will be between our eye and the subject, therefore creating scattered light. This overlay of light on the retina will reduce contrasts.[2] MON

Light became a qualitative element of modern architecture.
Should we give more credit to the darkness in the architectural design?

Fig. 01. In sanna’s work, the relation to depth is disturbed by the use of very low contrast and no color. The visitor is invited to move through space to understand and confirm his visual perception. [3]

Fig. 02. The white face and the black teeth and lips of the geisha served to emphasis the darkness of the room. [1]

SCH. *Treppe*
Simon Schubert (2020)

[1] Pallasmaa, J. (2012). The eyes of the skin: Architecture and the senses. Wiley-Academy ; John Wiley & Sons.

[2] Ichihara, S., Kitagawa, N., & Akutsu, H. (2007). Contrast and Depth Perception: Effects of Texture Contrast and Area Contrast. Perception, 36(5), 686–695.

[3] Yang, J. (2020). The Ambiguity of Visual Perception and Cloudiness in SANAA’s Architecture. Architecture and Culture, 8(2), 236-253.

Fig. 01. Model of Institute Valencia d’Art Modern, SANAA (2002).

Fig. 02. Geisha playing the Koto, Agence Mondial (1932).

STO

“Unconscious peripheral perception transforms retinal gestalt into spatial and bodily experiences. Peripheral vision integrates us with space, while focuse vision pushes us out of the space, making us mere spectators.”

Pallasmaa

We tend to think that our vision allows us to see our surrounding environment in an extremely high resolution. Which is accurate, but only for about 1% of our visual field. The rest of our visual field has a much lower definition rate.

This incredible high quality of visual information is due to the fovea.
This biological difference between parts of our retina allows us to have what is called a peripheral vision. Its resolution is poor, and only 50% of the visual system is used to process this transmitted information, the 50 other percent is dedicated only to the stimulus of the fovea. [1, VIO]

As the number of cones significantly decreases further from the fovea, the color, the shape and detail detection of the peripheral vision become very poor. But in contrary, further away from the fovea, the number of rodes increase. As they are better for low light detection, our peripheral vision helps us to better distinguish light during the night. It is also quite sensitive to motion, which warns us quickly of any kind of motion in our surrounding. [TIT]

Peripheral vision brings us a compressed information that allows us to render an entire complex scene in an incredibly short amount of time. And this compression makes this impressively high resolution of the focus point possible. It also makes us feel embodied in the space. We are not just passive observers, but we are included in the 3 dimensional space. [2]

Our focused vision is more related to the “what” system, whereas our peripheral vision is more relevent for the “where” system.

Our peripheral vision is reduced when our speed is increasing. This has a strong impact on our visual perception. [MEN]

How could our knowledge on peripheral vision improve our experience of the focused object?

Fig. 01. Using an understimulation of our visual sense, sanaa creates a fake peripheral perception on the entire visual field. The only focused and high contrast elements are the visitors and the art.[3]

Fig. 02. “Brain fills in the rest in a gross, impressionistic way based upon what we know and expect” -Andy Clark

STO. *Charcoal drawing*
Zoe-Louise Storer (2015)

[1] Johnson, J. (2010). Designing with the mind in mind: Simple guide to understanding user interface design rules. Morgan Kaufmann Publishers/Elsevier.

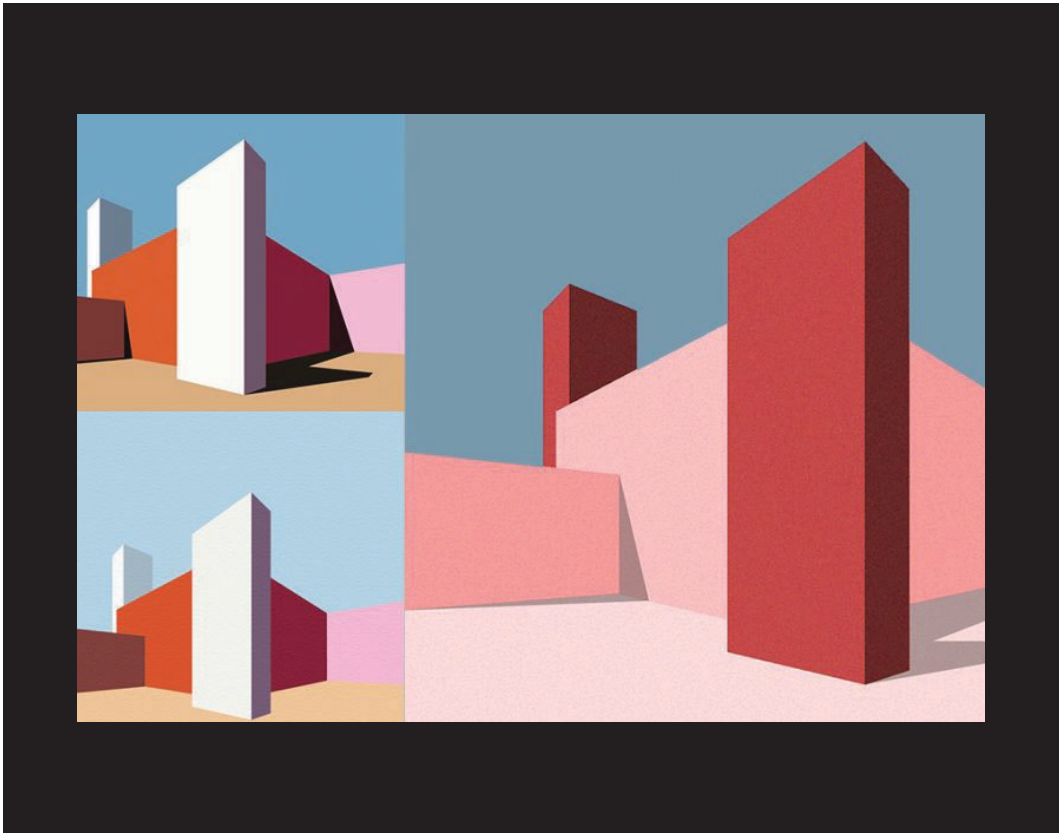
[2] Pallasmaa, J. (2012). The eyes of the skin: Architecture and the senses. Wiley-Academy ; John Wiley & Sons.

[3] Yang, J. (2020). The Ambiguity of Visual Perception and Cloudiness in SANAA’s Architecture. Architecture and Culture, 8(2), 236–253.

Fig. 01. The Louvre-Lens Museum, SANAA (2012)

Fig. 02. Transitions, Philip Barlow (2013)

BARR



“Architecture is an art when one consciously or unconsciously creates aesthetic emotion in the atmosphere and when this environment produces well being.”

Luis Barragan

Color has been studied by architecture in all times and in all societies. Since the ancient time, it has been used for its symbolic meaning. The importance of color in the different culture has certainly to do with the emotional state it can arise within us. [1, CSC]
But it is only recently that researchers have discovered that colors is way more than a visual information.

Since the last century, a correlation between arousal and color has been observed. Red was known to be much more stimulating that green. People surrounded by red light have an increase in their heart rate and have a faster muscular reaction than people surrounded by green light. [2, BEL]

But the explanation for this physiological behavior came only recently. Searcher had found a new kind of retinal cells, which are sending non visual information to our hypothalamus, a brain area not responsible for the formation of our visual images.

This sensitivity to particular wavelenghts (blue light) serves for the production of different hormones that have an impact on the circadian rythm, the mood, heart rate, impulsivity.[3]

In addition, of having strong cultural meaning and of being very useful in our *"what"* system for object detection and recognition, color has a very important physiological impact on our body. [HOC]

Color has a physiological impact and a cultural symbolism.
How could the architect respond to both needs?

Fig. 01. In tokyo a reduction of 74% of the suicide rate was observed in station where blue light was installed.[3]

Fig. 02. This 5x5m pavillion was exploring the alteration of the experience only by the use of color gradation.

BARR. *Houses Cuerámaro*
Luis Barragan (1948)

[1] TMD studio (2020). The perception of color in architecture. https://www.tmd.studio/blog/2017/8/21/the-perception-of-color-in-architecture

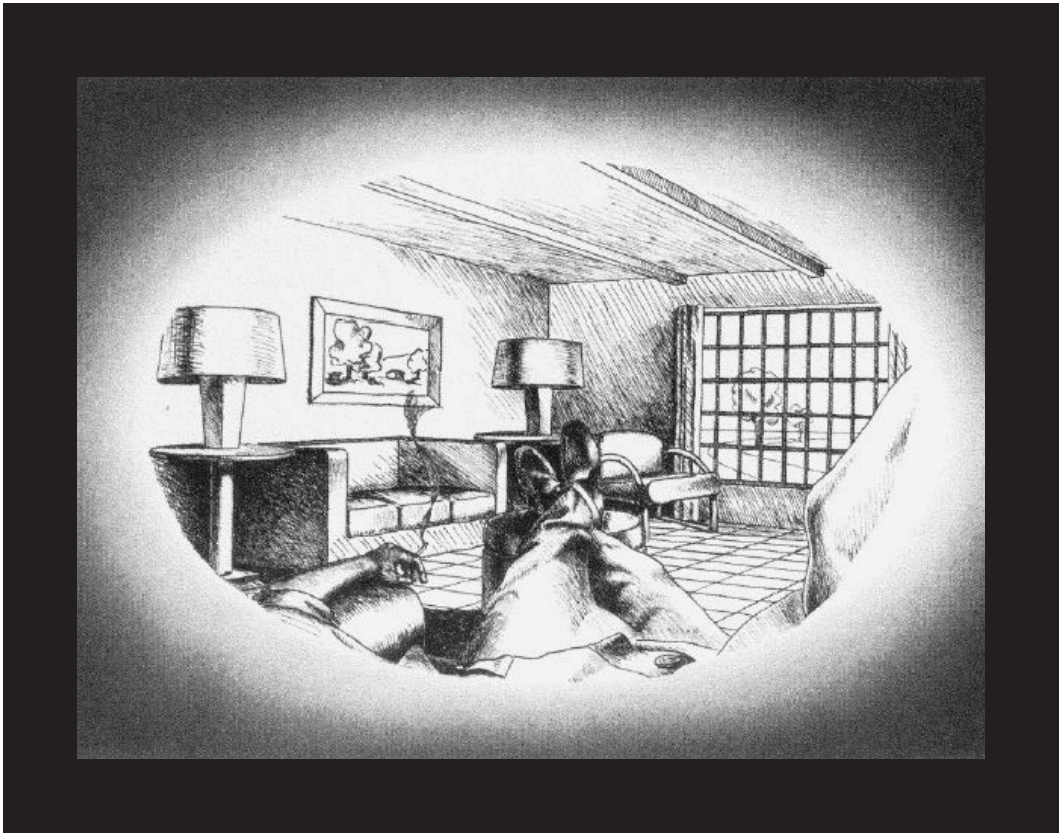
[2] Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. M.I.T. Press.

[3] Westland, S. (2017) Does colour really affect our mind and body? A professor of colour science explains. https://theconversation.com/does-colour-really-affect-our-mind-and-body-a-professor-of-colour-science-explains-84382

Fig. 01. Blue light in Tokyo's train station

Fig. 02. The spectrum, ETT studio (2013)

GIB



"The purpose of vision, I shall argue, is to be aware of the surroundings, the ambient environment, not merely of the field in front of the eyes. The ambient information is always available to any observer who turns his or her head. Visual perception is panoramic, and, over time, the panorama is registered."

Gibson

In his research to a more ecological approach of Visual perception, Gibson drew perspectives depicting the visual field of one eye. This representation serves to show the framing of one eye with the boundaries of our own self. By the representation of the eye orbit, the nose and the rest of the body, the concept of the embodied self becomes essential. [1]

Different ways of perceiving surrounding spaces have been identified. allocentric, and egocentric. Allocentrism is a spatial comprehension that use the relationship between objects in a scene, while egocentrism includes ourself in the spatial comparison process.

The advantage of our binocularism is that the brain will add up both of eyes informations to create a unique rendering of the surrounding. The comparison of those two images will give huge amount of spatial information. ESC

The framing process function through a combination of head movement and eye movement in the orbital cavity. Those movements are made possible by the oculomotor muscles. They are one of the more active and reactive muscles of our entire body. Their role in our perception is substantial as little motions, that are sometime unconscious, serve our spatial comprehension. Our eye has also an incredible stabilisation system thanks to those muscles. They allow us to go from very soft and stabilized scanning of a scene to a jerky analysis of it. [2], VIO

Ocular muscles are not the only muscles implicated in our spatial position and orientation. Indeed, all our muscles play an important role with the informations they send to our brain through our nervous system. This phenomenon is called proprioception. [3]

How can the knowledge on visual perception help us design more navigable spaces?

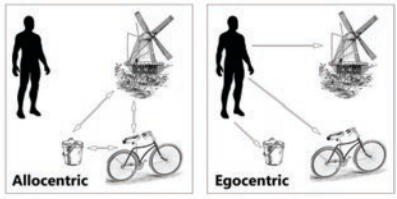


Fig. 01. Representation of allocentric and egocentric spatial references.

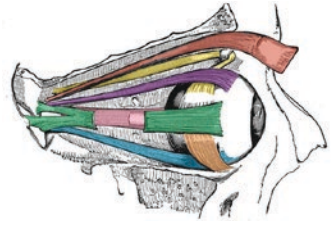


Fig. 02. The many muscles that control the eyeballs. They allow us to see in any directions.

GIB. *The ego as seen by the left eye.* James J. Gibson (2014)

[1] Gibson, J. J. (2014). The Ecological Approach to Visual Perception : Classic Edition. Psychology Press.

[2] Perkins, Edward S. (2021). human eye. Britannica. https://www.britannica.com/science/human-eye

[3] Mallgrave, H. F. (2018). From object to experience : The new culture of architectural design. Bloomsbury Visual Arts.

Fig. 01. Spatial References Frames, Inspired by Kozhevnikov (2010)

Fig. 02. Lateral view of the extraocular muscles, TeachMeSeries Ltd (2021)

AND

“Any representation of a building implies a certain opinion or conception of what the maker considers to be an architectural experience, in general, or the experience of a building, in particular.”

L. A. De La Fuente Suarez

Representation is one of the main tools used by architects in the design process. It can be used at any moment in the timeline of design creation and even after the project implementation. Drawings created during the development of the project will try to imagine the experience that the user will have to encounter. It is at this stage a powerful tool to generate ideas. We are talking here about pre-experiential representation. The most common method for experimental representation at this stage are sketches. They allow to really quickly convey some particular information, in a quite impulsive, raw and candid manner.

The simple use of line can uncover the form and the "movement" of the building, may it be straight or curved, attached to something or completely by itself. The strength of the stroke mimics the experience that the viewer should have of the building, it does not have to follow a conventional rule of construction and must certainly not be completely arbitrary. It can for example talk to our sense of balance by the simple use of lines translating some gravitational forces. [1]

With this kind of drawings, the experience of the building can be transmitted in a simple way that must not necessarily be completely realistic or refined with details as the main purpose is to make the form and the general concept of the building understandable. It usally reflects already known images and awakens our storytelling abilities. CSC

Post representations comes once the project is conceived. It will share an existing experience. We may think that there is one way to represent a built project. But, they are the product of one particular experience at a given time and from one perspective. Post-experiential can be used to guide the visual attention of the viewer. VIO

Should architects emphasize their intent to influence the user experience?

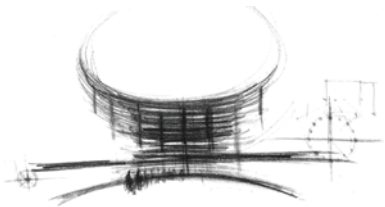


Fig. 01. The sketches made in the early design stages transmit the general idea of the form to be able to imagine and create it.

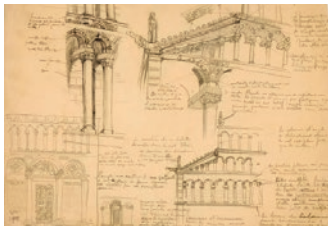


Fig. 02. Post production representations have always been used by architects to study existing projects.

AND. *Sketch of the Art Museum in China's southern city of Foshan.* Tadao Ando (1941-)

[1] *Fuente Suárez, L. A. de la. (2016). Towards experiential representation in architecture. Journal of Architecture and Urbanism, 40(1), 47-58.*

Fig. 01. Croquis, Tadao Ando (1941-)

Fig. 02. Studies from Italy, Le Corbusier (1907)

BEL

“All the senses, including vision, can be regarded as extensions of the sense of touch as specialization of the skin. They define the inteface between the skin and the environment between the opaque interiority of the body and the exteriority of the world.”

Juhani Pallasmaa

The representation of light in architecture can be done in two main manners. One brings a conceptual message about the space and the other wants to recreate an actual feeling of the light.

As said by Pallasmaa, vision has a direct link to the sense of touch mostly through the skin. [1]

One of the mutlitple interaction that skin has with our environment is through air temperature. This perception of heat can be brought by the light shown in a representation. The color of the light, how it will affect the object it touches and it's intensity can give us the impression of a cooler or warmer spot in the space represented and therefore the sensation we will have standing on that spot.

In a study carried at EPFL[2], researchers tested the "effect of combined variation of temperature (19 °C, 22 °C, and 26°C) and daylight transmitted through saturated colored glazing (blue, orange, and neutral) on visual perception of daylight." They showed that the "color" of the daylight can have an influence on user's comfort. With this, we can assume that the chosen color of the light is of great importance in representation. BARR

But light without matter is not visible so in order to recreate the ambiance of the space, some variables must be considered. Firstly, the ambiant dust of the space that allows us to see the light. Secondly, the direction of the light, as it will give the viewer informations on where to stand and thirdly, the materiality of the objects. [3], HOL

When should light be used in relation to an haptic experience over a theatrical purpose?

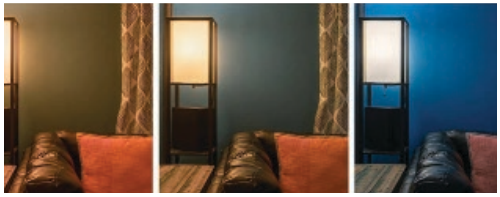


Fig. 01. Different lightning for the same room give a completely different ambiance and feeling of warmth. This can be used to give clues on the utilisation of the space.

Fig. 02. In this drawing, light beams are used to emphasize the source and the direction of the light.

BEL. *Aldar Central Market Project, Foster and Partners.* Bellini and Daglio (2008)

[1] Pallasmaa, J. (2012). The Eyes of the Skin : Architecture and the Senses. John Wiley & Sons

[2] Chinazzo, G., Wienold, J., & Andersen, M. (2021). Effect of Indoor Temperature and Glazing with Saturated Color on Visual Perception of Daylight. LEUKOS, 17(2), 183-204.

[3] De la Fuente Suárez, L. (2016). The Immaterial and Atmospheric in Architectural Representation. The International Journal of Visual Design, 10, 1-15.

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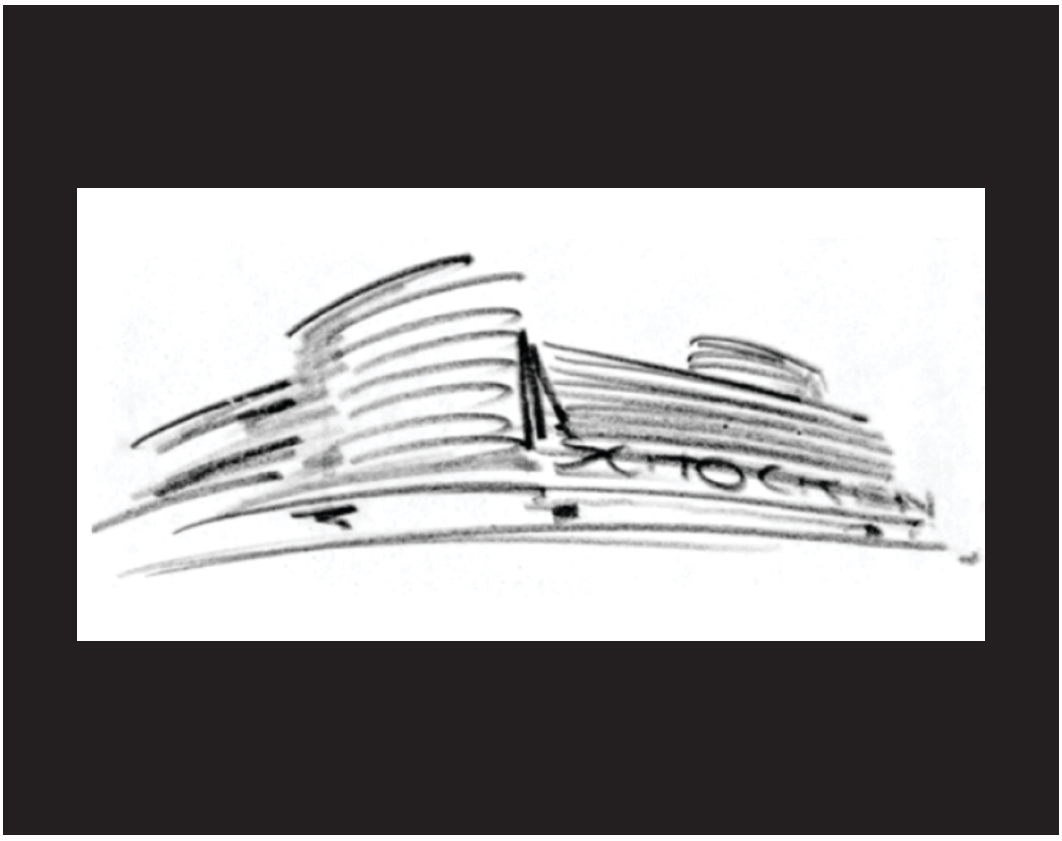
Fig. 01. Different LED lightning

Fig. 02. Tempio, Boullée (1728-1799)

MEN



“Architects in the past have tended to concentrate their attention on the building as a static object. I believe dynamics are more important: the dynamics of people, their interaction with spaces and environmental condition.”

John Portman

The “where” system of the brain, where most neurons are motion selective, is in charge of understanding the movement detected by the visual system and putting an explanation on the positioning of the object captured. As the detection of motion comes from a very fast processing and does not require a huge amount of detail or color, the peripheral vision and more precisely our rods are really good in its detection. This system is used for the determination of visualy guided behavior. [1, STO]

While discussing about embodied architectural experience, we must consider our body motion through space as we are never experiencing architecture as truly static observers.
As visitors move around the space created by designers, their vision follows them and the objects seen will shift and change depending on the distance they stand from them. But the actual speed of the visitor must also be taken into consideration. To be able to recognise these “different” objects as the same, the brain must compile the knowlege he has on this object to make an understanding of it. [2]

When we move, the “where” system selects what is important to capture to be able to position ourselves and the object in space in order to understand the interaction between the two entities. [ESC]

Viewer movement in space can be explored through representation. In architectural theory, a lot of thinkers have discussed about the change in our cities due to the implementation of cars in the street. Obviously it changed a lot the physical organisation of our streets, but it also brought us a new speed from which we see the buildings. How will a cyclist perceive a facade in comparison to a pedestrian or a driver?

Can a building respond to the needs of different users, depending on their perception at different speed ?

Fig. 01. Our peripheral vision is influenced by our movement speed. It gets blurrier when we move faster.

Fig. 02. Cities are meant to be experienced at different velocities. Some part of it are done by foot, others by cars. This is reflected in the urbanistic design of cities.

MEN. *Sketch of Schocken Department Stores.* Mendelsohn (1926-27)

[1] Amthor, F. (2016). Neuroscience for dummies (2nd edition). John Wiley & Sons, Inc.

[2] Encyclopedia of neuroscience. (2009). Elsevier.

*Fig. 01. Blurred Human Peripheral Vision, Xavier Zanlonghi (*2005)

Fig. 02. Genola Nolli Map

MON

"...architectural visualizers are creators—at a representational level—of ambient conditions on projects defined by others; i.e. their decisions modify buildings, not in terms of materials and shapes, but in the atmospheres under which we find them."

L. A. De La Fuente Suarez

Atmospheric quality of a scene is impressively well shared in impressionist artwork. They have the ability to transport us in the scene, and talk to our deepest memories and emotion. The building and the element of the scene may disappear a bit, they are not the main subject anymore, everything is about a particular feeling that those particular atmospherical conditions awake.They describe a perception of an ephemeral moment. [1]

Atmospherical variation can be engaged by particular weather conditions or by specific installations. The humidity and fog in thermal bath are a good example of atmospherical conditions that must be considered to represent the actual experience of the space. BEL

The air quality and characteristics are intrinsic to our experience of the environment. It wakes our senses. Certain non-usual conditions may disturb our visual perception. The sense of mystery that they provoke are calling us to investigate the space. What are the details that are hidden by this fog? They create a sense of place for the viewer where imagination is triggered. SCH

Those ambient representations show physical and environmental elements that will partially obstruct our vision. They produce a loss of sharpness in the scene that we are watching. This is due to an optical phenomenon called scattering.

When light encounters air particles, the color, which have different wavelengths, will be reflected at diverse angles. The more air particles the colors meet, the more diffuse the light will seem. It is why far away objects seem whiter and paler than close objects. [2]

Should architects play further with the atmospheric conditions to create particular experience?

Fig. 01. Architects such as Philippe Rahm use atmospheric instalations to adress the global warming issues through experimentation.

Fig. 02. The representation of ambient conditions in this drawing give a sense of reality to the scene.

MON. *Houses of Parliament. Claude* Monet (1904)

[1] *De la Fuente Suárez, L. (2016). The Immaterial and Atmospheric in Architectural Representation. The International Journal of Visual Design, 10, 1-15.*

[2] *Scattering of Light | CK-12 Foundation. (n.d.). Retrieved January 13, 2022, from https://www.ck12.org/book/cbse-physics-book-class-x/section/2.5/*

Fig. 01. Vue d'un Météore, appareil climatique, Jardin Météorologique, Taïwan (2016)

Fig. 02. Water House, Shinkenchiku Residential Design Competition, Tokio (1976)

TIT

“The real test of architecture is the phenomena of the body moving through spaces, which can be sensed and felt regardless of understanding the architect’s concept and philosophy.”

Steven Holl

As architectural spaces are meant to be lived by multiple users, there always will be moving entities.

As we are talking about moving subjects, we know that the “where” system will take care of detecting and positioning the moving entities in the space.[1]

Detecting, analysing, categorizing and evaluating movement exterior to the self is a primordial need for humans in order to survive. It helps us understand what is happening around us to develop the best behavioural response depending on each specific situation. As humans learn by observing and copying, the observation of other user’s motion through space is an important aspect of our own spatial experience. [2]

Therefore, it is quite interesting to show the flows and uses of the space by keeping the architecture still but making it’s user move through representation.

The loss of sharpness can give us plenty of informations on the flow of movement. The direction of the people and the amount of users can be highlighted as well as particular change in motion speed because of the usage. MEN

While studying the usage flows of a project, the question of temporality becomes particularly interesting as we are not talking about a fixed moment in time. Video and time-lapse are the most commonly used medium to address this issue. But we invite to an exploration of still representation, investigating motion and temporality as its main subjects.

To which extend can architects define the precise flow of usage of their projects?

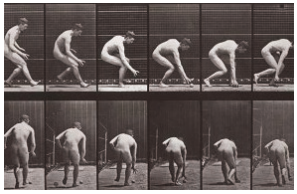


Fig. 01. We used photography as a mean to study the body movement and it’s caracteristics.

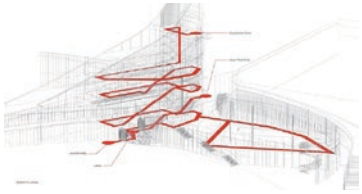


Fig. 02. Circulation flow is always a main concern in architectural design. It is often explained through diagrams but those tend to forget to show the user movements.

TIT. *City of Shadows.* Alexey Titarenko (1992)

[1] Amthor, F. (2016). Neuroscience for dummies (2nd edition). John Wiley & Sons, Inc.

[2] Encyclopedia of neuroscience. (2009). Elsevier.

Fig. 01. Déplacement Animal, Muybridge Eadweard (1830-1904)

Fig. 02. CirculationDiagramm, Musée de Louvain la Neuve

HOC

“Form, as we have been told, follows function. It delimits an arena in which things can take - that is, be given - shape.”

Gerald Moore

Colors are the result of a lot of neural information that the brain receives from the rodes located in the retina and subsequently from the primary visual cortex. These informations are treated in the “what” system of the brain which will define exactly what is each object in the picture.

This pathway of the brain is here to understand more complex matters such as colours, patterns, and details. This circuit is slower than the “where” system, but much more accurate. [1]

By understanding the differences of colors, the brain can detect the borders and, therefore, the boundaries of the elements and their connections. It requires large differences in brightness to be able to clearly understand what the vision sees. CHE

Colors and forms are often also associated with our pre-existing knowledge. As Charles Moore said, a form can take many shapes. The form of a chair makes us understand its function, we can sit on it, but chairs can take many shapes and those shapes are understood depending on three different levels; archetypal, meaning shapes that all humans share, cultural, changing in each different culture, and personal, based on ones own experience. [2]

The “what” system will make possible our understanding of the forms and the shapes, but various individuals may understand them differently depending on their cultural and personal background. This also induces an important emotional relationship with the created image. BARR

How could the cultural symbolism of shapes be used to create more inspiring and emotional buildings ?

Fig. 01. When displaying many objects in a painting, the interpretation of the shapes is left to the viewers discretion.

Fig. 02. Chair design is of great interest for architects even though they all have the same function.

HOC. *The splash.* David Hockney (1966)

[1] Yang, J. (2020). The Ambiguity of Visual Perception and Cloudiness in SANAA's Architecture. Architecture and Culture, 8(2), 236-253.

[2] Moore, C. W., & Allen, G. (1976). Dimensions : Space, shape & scale in architecture. Architectural Record Books.

Fig. 01. Large Interior, David Hockney (1988)

Fig. 02. Chairs of the 20th Century, Delima

HOL

“Touch is the sensory mode that integrates our experience of the world with that of ourselves. Even visual perceptions are fused and integrated into the haptic continuum of the self;...”

Juhani Pallasmaa

Our eyes work in direct collaboration with the body and our others senses,. It calls greatly to our sense of touch. Representing textures confirms the neural informations of the viewer, turning the representation closer to the reality.

Through mirror systems, our brain understands the haptic aspect of the objects we see. It calls for a sensory experience of the space by mimicking the interaction our skin would have with the materiality. [1, BEL]

The visual cues of the surfaces, such as reflection, grain, colors, their depth and contrast, trigger the memory of the actual experience of touching those surfaces from past experiences.

A realistic representation is not always necessary to set off our mirror systems. Sometimes as we can experience with different types of art, another approach may be even stronger to awake known feelings.

This phenomenon brings the representations closer to an embodied experience as the watcher will imagine himself interacting with the textures. This interaction between the vision of an objects's texture and the sense of touch is something very primal. It reminds the interaction of the skin, said to be "the oldest and most sensitive organ of our body" by Ashley Montagu[2], with the world that surrounds us. It is triggering our memory of already lived experiences thus making the drawing closer to the realm of other senses and turning the representation into something truly experiential.

Modern architecture has a strong tendency to tend to a very "pure" usage of materiality. Shouldn't architect explore the beauty of our haptic system, by emphasizing the relation between materiality and our emotional state?

Fig. 01. Just watching at this photography triggers mirror neurons and we can "feel" the act to run our fingers through the texture.

Fig. 02. Even seeing jesus with holes in his body is not enough for Saint Thomas. He choses to verify what he sees with his sense of touch.

HOL. *Chapel of St. Ignatius.* Steven Holl (1926-27)

[1] Mallgrave, H. F. (2018). From object to experience : The new culture of architectural design. Bloomsbury Visual Arts.

[2] Pallasmaa, J. (2012). The Eyes of the Skin : Architecture and the Senses. John Wiley & Sons

Fig. 01 Haptic Texture

Fig. 02 The Incredulity of Saint Thomas, Caravaggio (1603)

CHE

“It has been said: The whole is more than the sum of its parts. It is more correct to say that the whole is something else than the sum of its parts, because summing up is a meaningless procedure, whereas the whole-part relationship is meaningful.”

Kurt Koffka

The “where” system of the visual pathways of the brain is completely colorblind, but this does not refrain it from identifying the environment. It works very well in detecting contrast, and therefore depth, to determine the position of the objects. The low accuracy of the “where” system compared to the “what” system allows it to have less information to process, which result to a very fast image processing[1]. It is a considerable advantage for motion detection and quick general understanding of a scene. STO

Therefore, we understand why we can identify so quickly an actual building by just watching black planes positioned in a certain way. Our brain has the ability to create parts of information with already known concept and depth understanding. This process happens in an incredibly short amount of time. And it can relate to what is called the binding theory, which in really simple terms, is the capability of our brain to add up pieces of information to create a general interpretation. [2]

Conceptually, it is close to the Gestalt Psychology which revolves around the fact that organisms see things as a whole and do not lose time on identifying every component. This explains why the “where” system of the brain is quite sensitive to visual illusions and seeing things that are just brain reconstitution of known elements. It is where experiences and memory play an essential role. ESC

The first glaze in a new environment is crucial to our future feeling of the place. Could visual illusion be used as a design element to direct the incoming architectural experience?

Fig. 01. The brain shapes a white triangle surface while watching this visual illusion even though it does not exists.

Fig. 02. The black surfaces represent a saxophonist but our memory system sees a face at first glance.

CHE. *Neo-Gothic Utopia.* Yakov Chernikhov (1930)

[1] Yang, J. (2020). The Ambiguity of Visual Perception and Cloudiness in SANAA's Architecture. Architecture and Culture, 8(2), 236-253.

[2] (2021). Binding Problem. Wikipedia. https://en.wikipedia.org/wiki/Binding_problem

Fig. 01. Motif of Kanizsa (1955)

Fig. 02. Saxophone Illusion

MIE

“L’architecture [...] nous donne un enseignement précieux. Elle s’apprécie à la marche, avec le pied : c’est en marchant, en se déplaçant que l’on voit se développer les ordonnances de l’architecture. [...] il s’agit d’une véritable promenade architecturale, offrant des aspects constamment variés, inattendus, parfois étonnants.”

Le Corbusier

Architecture is often designed to be lived as a ballade. You wander from space to space experiencing certain state that the architects wanted you to encounter. When we move in a space, our vision changes because of our speed. MEN

But the essential aspect of an architectural ballade is the fluctuation of rhythm that you will have. You walk faster at some point and your visual field will lose its sharpness, at one point something will catch your visual attention and you may slow down and examine a certain scene. VIO

Architecture can be a ballet of discovery. Depending on the rhythm and the combination you choose, you will face a completely different experience each time.

The experience lived cannot be an exhaustive experience of the space. It is the addition of variables that led you to this particular occurrence.

An architectural ballade can be described without any actual architectural component. Space and experience can be understood in multiple different ways. Representation has the chance to be selective, and explore different elements that compose a project. [1]

We tend nowadays to create, the more realist rendering of architectural project as possible, trying to get closer to what would the real experience be. But what if, in the design phase and even after the realisation, the most complete representation of an architectural experience is a collection of fragments?

Architectural experiences could be lived everytime differently thanks to the complexity of our body and its interaction with our surroundings. But we, as users, tend to be numbed and not really look when we know a place.

Could architects have an impact on the long term curiosity of the users?

Fig. 01. Directing the viewer by projecting uncommon angles may make us more aware of things that are usually forgotten in traditional perspectival views. [1]

MIE. *Museum for a Small City. Ludwig Mies van der Rohe (1969)*

[1] *Fuente Suárez, L. A. de la. (2016). Towards experiential representation in architecture. Journal of Architecture and Urbanism, 40(1), 47-58.*

Fig. 01. Drawings for the Parc de la Villette, Bernard Tschumi, (1984)