Christopher Pope

POLYVALENT PERCEPTION (PVP)

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Escaping The Traditional

School of Architecture | UNCCharlotte

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Bart Hess | "Echo"

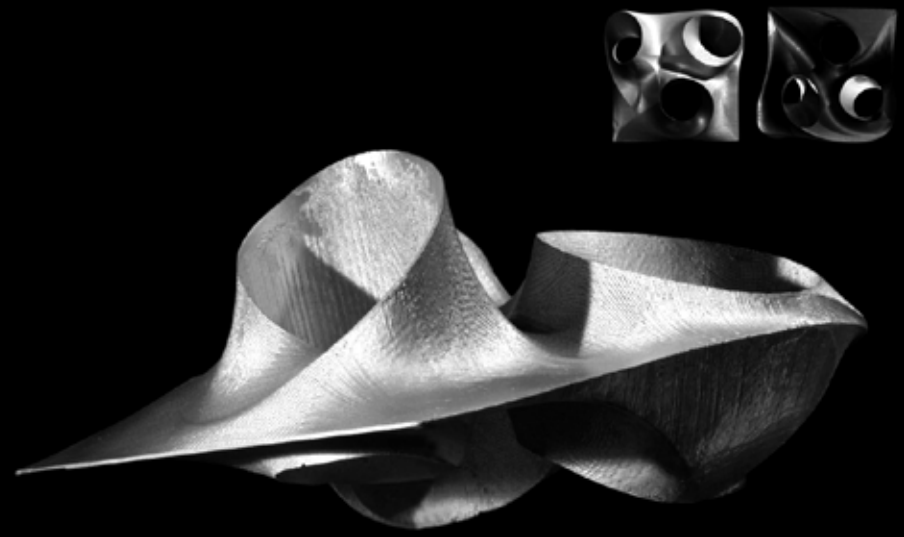
A lens for manifesting the possible and non traditional:
+
How does one orient themselves?
+
How is space occupied?
+
How is ones' perception varied?

AN INQUIRY

The "First Digital Turn" as Mario Carpo calls it, brought with it questions of how to move towards something architectural that is truly digital. For some, like Greg Lynn, working on the cusp of these issues moved them towards deluzian inspirations. What followed for many was a plethora of systems based thinking and designs with the fascination of the infinitely customized and ever changing/reacting. Fast forward to nearly two decades into the 2000's and some are beginning to believe that it may be worthwhile to turn back towards the object, in a different way than the modernists did. Defining the differences in these approaches and their ties to other issues such as that of authorship becomes necessary for setting the playing field of this complicated game. More importantly the issue of the "projectile", which those like Bernard Cache speak on, can bleed through concept, diagramming, representation and the built and virtual realities. Its clarification would put this all in clear perspective and give more obvious grounds to make an argument against or for the current trends and alternative directions.

Systems approaches are becoming murky grounds because, while its ability to point towards a "projectile" seems clear enough, it proposes that something other than architecture may be the answer, and a balanced system according to some like David Ruy, may not even be feasible. It is therefore the intention to inquire less of systems and more of the object in relations to these digital issues. Even so, many of the same influences of Kwinter, DeLanda, and Chu remain just as relevant.

There is an issue, however, that runs parallel with these conversations that may be more prevalent. The manifestation and materialization of many of these ideas is what allows its evolution. On top of that, the very "projectile" one may seek may lie within such things; a new evolution of the diagram. It begs the question, with all of these arguments over which path to take, or what is truly digital, how has representation and projection changed to facilitate this. Could it be that this has served as a bottle neck all this time? Perhaps the utilization of new technologies such as AR/VR or animation that implement *time* could be a step in the right direction, or does it require something new entirely.



Coop Himmelb(l)au | Marting Luther Church Concept Model

Mortiz Hanshans, Artur Staskevits | Studio Hani Rahid | 2015

A Review

Designers, artists, philosophers and the like have all been inspired by nature for centuries. As the human race continues to unveil its intricacies, magnify its atomic beauty, and unravel its code, more flock towards natures embedded knowledge. Architects, the self-proclaimed puppeteers of the built environment, have examined nature and those that theorize its "code" for answers to how our buildings and cities could improve, or perhaps evolve as organisms do. Thus topics such as Emergence, Bio-mimicry, and Projectile have arisen. With the new age of digital technology "changing how we design", as many say, computation can now take this inspiration and allow an unprecedented speed of experimentation all influenced by these ideologies and theories. This review begins to examine influences of these topics on architecture and compare commonalities and perspectives as they unfold.

Event

Before the pallet becomes muddied with nature and philosophy, Bernard Tschumi can open the conversation with only architecture and an idea of flexibility. In "The Architecture of the Event" Tschumi proposes the "rejuvenation of architecture" through the "contamination of all categories"; this idea that in today's society, where "churches become nightclubs", architecture should develop a flexibility lead by the possibility of different events. If a space were to remain flexible, rather than rigid to one intended program, in hopes of allowing varying events to take place, the functionality and longevity of the built environment may improve. This begins a conversation of evolution and adaptation without yet referencing natural processes and computation. In a raw sense, Tschumi proposes as we are adaptable beings, shouldn't our spaces, and therefore architecture, not be adaptable as well. As he references Foucault's "events of thought", Tschumi suggests, "that the future of architecture lies in the construction of such events.

Fold

Gilles Deleuze and his work, "The Fold Pleats of Matter", have become of great influence to a field of architects interested in these ideas of flexibility. In this work, Deleuze explains a concept of folds within all things, leading to a philosophy of multiplicity. Multiplicity (multiple multiples) explains diversity, which occurs as things develop from general to special. He speaks of the "Law of Curvilinearity", or low of folds, which delves into this development. Because of an inner code, unity or unified form comes from within, while exterior forces determine movement of the folds leading to variation.

Blobs

Greg Lynn, a pioneer in computational design, was fueled by Deleuze and expanded upon these ideas of flexibility. In "The Folded, The Pliant, and The Supple" Lynn relates Deleuze's concept of smoothness, or continuous development of form, and the laws of the fold to architecture. This idea of internal flexibility and external deforming forces leads directly to what he calls "viscissitude" or a new concept of "forms of viscosity and pliability." This ideology blends directly into a relation to systems, which Lynn describes as a need for logic over style in order to question how "external particularities" could inherently be plied.

Reaction

Manuel DeLanda claims in "Genesis of Form" that stability of these oscillations will occur through a closed loop, leading from a concept of "abstract machines". Through a defined loop, "perfect" options will come more naturally. He continues to contemplate flexibility and determines that diversity and multiplicity lead to de-emphasis of the individual (architecture). If architecture were instead to behave like "chemical reactions", elements that act and react, the result of the reaction can triumph over any individual element.

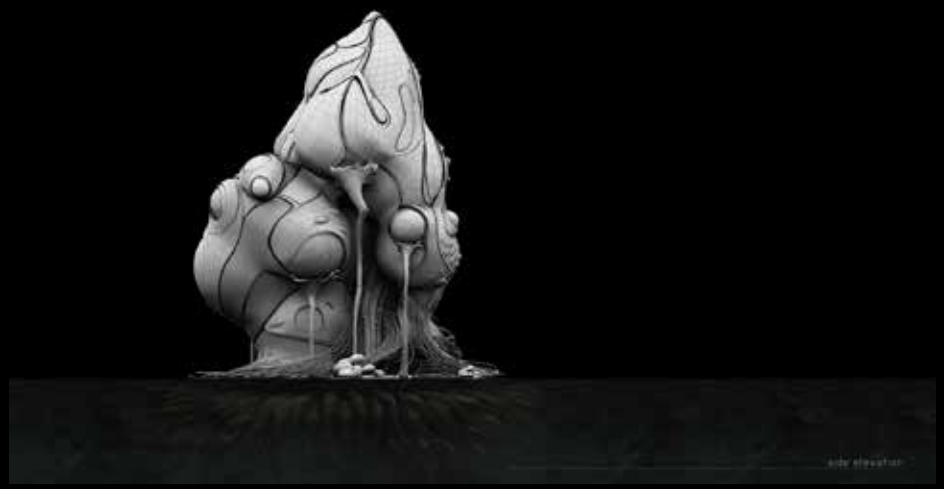
Genetics

As these theories of flexible architecture manifest in the technical, the conversation moves towards "Metaphysics of Architecture and Computation" by Karl Chu. Here he speaks of "Monadology", or something programmed to self-produce variations of emergent relations and ensembles; an "open source" architecture which could only be superseded by a pure genetic architecture. A computational dream, this concept of genetics and architecture speaks to a scripted and biologically behaving architecture able to make decisions and evolve which touches on similar points from Lynn and complex systems.

Time

In the case of Sanford Kwinter, time is no illusion but in-fact, the one thing architects have been missing. In "The Complex and the Singular" time is described as the key factor giving life to morphogenesis, or the "novelty" of flexibility and variability. Only by considering the possible in and with time, rather than the real which destroys time, could such a system exist. Through an active role instead of mere reaction, architecture can retrieve its importance in shaping the cultural and social.

Many of the discussions here remain at a conceptual level and leave out the dense conversations

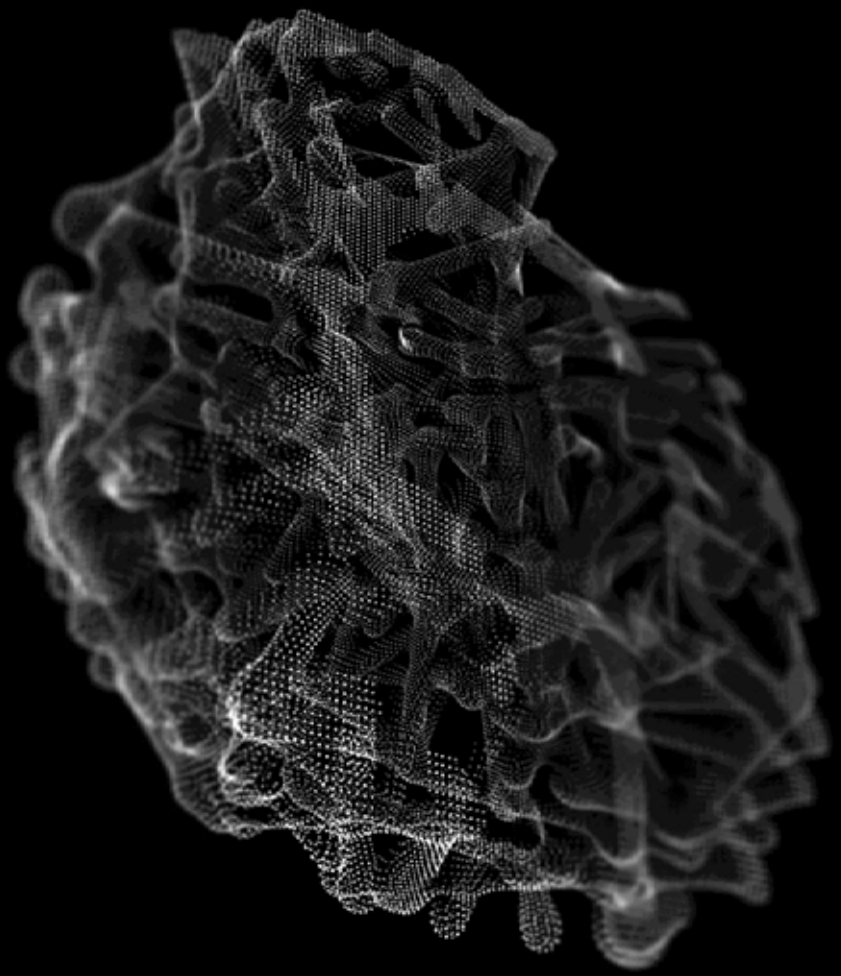


Dennis Schiaroli | Music Pavillion

of computation and parametricism that they typically lead to, but the topics at hand could delve further into an underlying issue: objects versus systems. It seems many of the authors speak of architecture (object) while hinting at performative qualities of systems, or wanting them to be the same when traditionally they are quite different. Cross analyzing this with writings of those like Graham Harman and opposing systems thinkers could prove insightful into where the projectile and future architectures lie.

Identity

Mario Carpo, along with Bernard Cache, has followed and commented on the changes and implications of these concepts primarily with their ties to the digital itself. In "The Alphabet and the Algorithm", he comments on the current issue of authorship. Many link objectification to a certain sense of identity, maybe even narcissism within this age of sensitivity. According to Carpo, with the evolution of the practice of architecture, more people are involved, across greater distances and less time. This along with current trends towards a sensitive or reactive architecture has blurred a projects creator; the very way in which so many people work has become systematic and their creations are representative of that. This has led to an eventual negative outlook on the object and authorship.



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Carpo also speaks on the traditions and history of representation. Since Alberti made popular the methods of designing at a distance, the traditions of representation have continued throughout the centuries. On a fundamental level, disregarding tools and flash, it is difficult to pinpoint what has changed about the methods implemented when representing or projecting. Quoting Alberti himself, Carpo even concludes that it is never really the building that one is an author of, but the drawing in which their idea is manifested; the building is the first copy.

Chaos

David Ruy, an architect and theorist, is supportive of a new trend towards objects. In his essay, "Returning to Strange Objects", he comments on the tendency of humans' perception towards nature. To most, he claims it is seen as a balanced, ever-reacting system that humans should strive to learn from, when in fact it may be more accurate to say it is in constant chaos. Rather than look towards the greater system, Ruy refers to another theorist and philosopher, Graham Harman who is known for speaking on OOO (Object oriented Ontology). In reference, Ruy expresses the instability of systems and that it may prove more effective to look towards the objects that may be seen as to make up a system, for within them lies an unknown making them ever unpredictable. He uses this notion to steer clear from tending the "gardens" for eternity in hopes of maintaining balance, and instead move towards what causes the chaos so that it may be favored not avoided.

Diagram

Through extension of the "projectile", a question of digital representation and evolving means of production, the manifestation of ideas must be dissected. Anthony Vidler, in "Diagrams of Diagrams", discusses the evolution of such a thing: the diagram. This transference of thought to projection takes on an identity through medium and has been through abstraction and layering until it has reached what it is today. For some, as Vidler states, it is a manifestation of the systematic workings of those focused on sensitivity and performance; a "diagram of diagrams" all compiled into a host of information used for justification. The diagram is indeed evolving but the digital influence on its transformation is on surface level thus far.

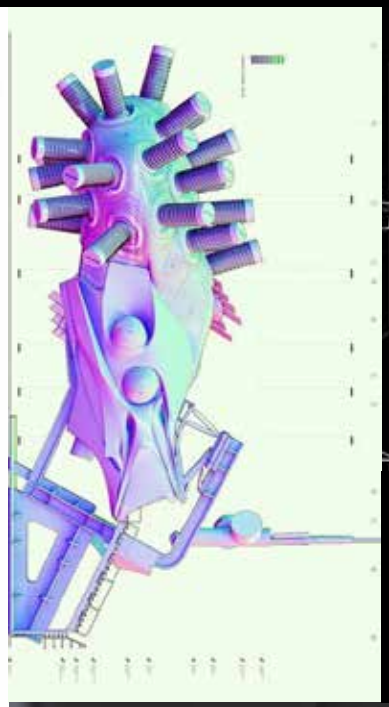
Objects and systems, time and space, chaos and balance, the projectile and the diagram; the field is large and full of conjecture. Through careful stitching, such a collection can be made that could allow then for a lens to be placed. Once the whole is better understood through its links, a piece can be pulled with threads still attached so that one may examine, speculate, and experiment. If it works for theoretical physicists, it may work for theoretical designers.

PURSUIT TO IDENTIFY THE TRADITIONAL

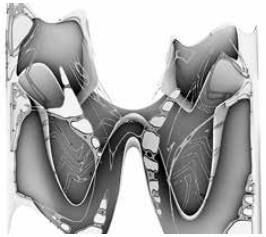
I N S P I R A T I O N

AND CHALLENGE ITS ORIENTATION

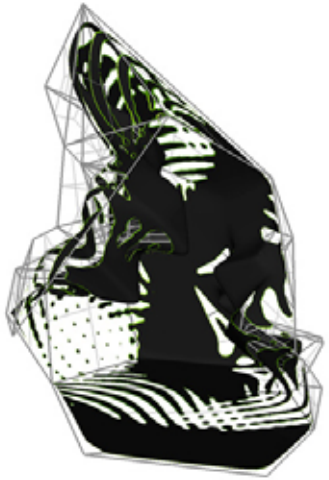














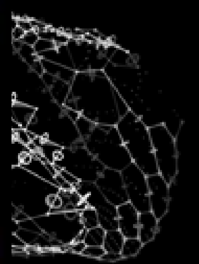
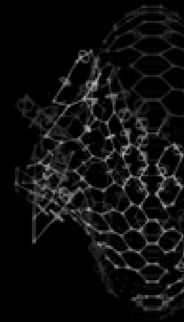






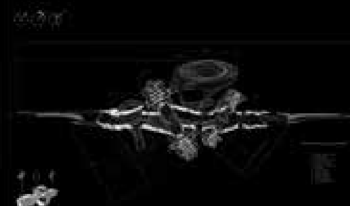
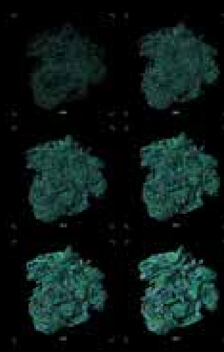









POLYVALENT PERCEPTION (PVP)
OBJECTS & ORIENTATION

Louis Daniel Pozo - Studio Hani Rashid 2015

PREMISE

Long lasting debates in search of the future for architecture have been null. In search for the "projectile" designers have followed computational design to the cusp of systems thinking. No matter, at a fundamental level a line can be drawn for tradition stemming from Alberti to Zaha Hadid that shows architecture has not changed as some may claim.

Perhaps, as those like Graham Harman projects, a new take on an old directive towards objects may be the answer, but it may require one to look among the stars rather than objectifying buildings. As the 21st Century thrusts mankind into the vast expanse of space with plans to colonize our neighbor Mars, architecture should not remain behind to tend the fields of object and surface, but experiment with what it means to have no surface and dissolve away the entrapments of orientation.

Representation

There have been many claims as to how computation has "changed the way we [think, design, build, represent]" and in some ways this may not be completely false. There is no doubt that the speed of processes has dramatically increased, allowing one to tackle ideas once thought impossible or simply too time consuming. Thus technology is embedding itself into the practices of design. Yet it is still too common to print upon paper a section and plan through out a design process. This tie to traditional methods of representation both fundamentally (the [drawing] type) and mechanically (the printer) show some part of this digital revolution has yet to truly take hold and break us from century old chains and thrust us into, "the sea that swept away," our sand castles.[1]

As the architectural field, or field of design for that matter, moves forward it must reflect even upon the processes at which ideas materialize or manifest. Mediums and means inherently have an effect upon our reflections, reactions and interpretations. It is here a critique can be made of the first digital turn as to how the representation and projection of its ideas have changed, if at all, from long lasting tradition.[2] This mentality can then carry forward in the future analysis of objects without orientation. If there is no ground plane, no up nor down, from where does one take a sections? What distinguishes one from a plan? What would replace them?

1 Koolhaas (1995), pg. 961
2 Vidler (2000), pg. 1-20

Objecthood

The "projectile", presented by Mario Carpo and Bernard Cache as the possible future architecture (still not clearly defined as many attempt to reach it), could be thought of as a system. An entity of inputs and communication, constantly adjusting and adapting to maintain efficiency. This seems to be the direction current trends in computational design are pointed towards. Thus an evaluation is in dire need, for systems thinking breaks away from architecture. It is something of its own identity.

In response David Ruy claims we must turn back towards the object, but in different ways than those before us, such as the modernists. Ruy, with reference to Graham Harman's OOO theory (Object Oriented Ontology), often speaks of human tendencies to look towards nature for guidance or inspiration. In ways, it is a system and its organisms adapt and change, but systems are not perfect with no exception to nature. He claims no system can reach equilibrium but instead lie in constant chaos. It is here humans must make the choice to either tend to the field of the system, forever correcting and maintaining balance, or to look back towards the objects that can be thought to make up the system itself. Each object has an inherent mystery and unpredictably that prevents the perfect balance many long for.[3]

It is the intention following these words that explorations of the isolated, disconnected, ungrounded or Lost in Space shall be considered objects. It is with this lens that orientation in conditions of no favorable plane shall be examined and explicated. Let it be noted that this does not infer singularity necessarily. OOO theory then becomes a reference for its objective clarification and for its focus on objects, and objects within objects, rather than systems.[4]

Remove the Surface

The call to outer space has the potential to move past a critique of the present and set the stage for a new take at the architectural object. Currently many experimenting with these ideas of the object remove context to isolate the object and the surface[5], remove scale and generate amongst the virtual, and even remove the human to contemplate the alien.[6] Given the "site" of outer space, a translucent scale is given allowing the reference to human interaction or comprehension to take place while not stepping too far out of the realm of mystery. The "site" also contains no ground, no plane of orientation but the possibility for vast variable perceptions.

3 Ruy (2012) pg.38
4 Harman, 2016
5 Vigneri-Beane, Split Studio
6 Cook, AAC

These concepts combined remove qualities found in all of the projects of the first digital turn that are still chained to the traditional.

What does it mean to remove the surface that so quickly becomes tied to this planet? How can considering orientations as a variable influence the way we design the future? The early stages of such an answer may lie in its representation or means of projection; the materialization of one's ideas of the unearthly, the floating, the isolated object in the vacuum of space.

Research Objective

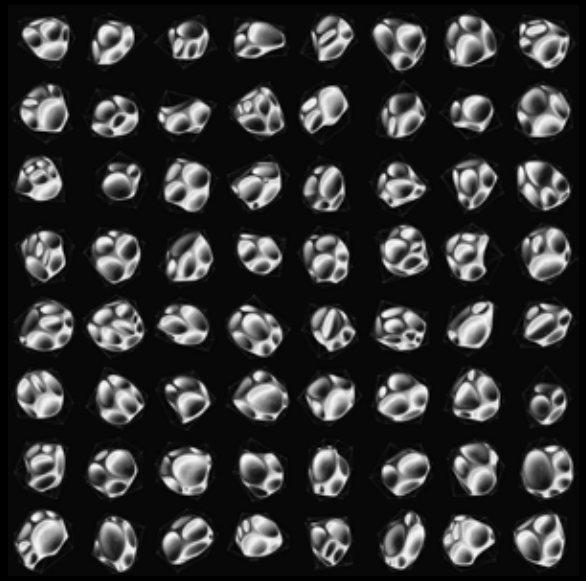
Experimenting with orientation is not new, nor is the realization that zero-gravity expands the possibilities when inhabiting space. Long have the arts, particularly motion pictures, played with these concepts while agencies like [NASA, SpaceX, ISRO, ESA, CNSA, JAXA, & RFSA] have developed the practical technology of the interstellar. A dissection of such things, ranging from the Apollo CM, an early vehicle of zero-gravity travel, to the set designs and filming practices of Stanley Kubrick's 2001: A Space Odyssey, will set an initial plane for early studies. The pieces of these "early" constructs will mix amongst the dreams of animation and film; both their missed opportunities and clever solutions. Orientation amongst the variable curves of space can then be further explored, having the opportunity to remove, reimagine and add new pieces to the "Site". Such concepts will be critically and strenuously explored through the lens of possible representation and the mediums of the next digital turn.

Initial Reflection

With these projections, questions of position, medium and process arise. What does context become or what replaces it? If orientation is multiplied what does a cut [section or plan] through an object evolve into? What are the mediums of the next turn? It could be said that movement towards what is now the traditional practice of drawing through section and the like took an initial cognitive advancement. So with the tools of today, do we require cognitive realization to move past copying methods of older technology? Perhaps the tool does not matter, or maybe the tools are designed with too clear an ability to replicate the old.

perception | orientation

The occupations of space by users instigates dynamic happenings between spatial energies, ambiguous in nature, which prompts its vast intrigue. This dance practiced in curves of space and time, with no ground for situation, only becomes more compound in obscurity. Before this venture into exploring those concepts mentioned, some clarification may be in order.
In order to speak in terms of orientation and perception, there must be something to reference relative to that which is being analyzed. Borrowing from the sciences of physics and anatomy, a plane of reference [RP] is used for each object. Rather than a point of reference, defining coordinates in space[time], this plane is more similar to that used for analyzing orbital elements in celestial mechanics and that of 3D modeling software. Such a plane is vital when analyzing and speculating conditions between relative objects in space. A reference plane is an inherent attribute of an object. This plane can align, or be paired, with other planes. Typically on a planet that plane is of the ground. In other instances the plane of the object may have multiple options of which to align itself if at all. This process or comparing reference planes is that of determining the spatial orientation of the object, but in space most things are relative.



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These planes begin to define two key characteristics of the objects that occupy space:

Orientation

[Object-RP | Local] :

Often an objects' natural state of existence. To some with directional tendency such as humans this can mean defining a local up and down. It can be determined by the object's condition upon its reference plane even though an object's condition can change without altering its reference plane.

Can be relative to the paired plane as well as the occupied space/object.

[Vessel-RP | Global] :

Determined by the condition of the inhabited object [vessel] in reference to some global plane similar to that in celestial mechanics. This object has its own condition separate from that which inhabits it. This typically does not affect perception [depending on proximity and scale] and in most cases may be irrelevant.

Perception

[RP-Object] :

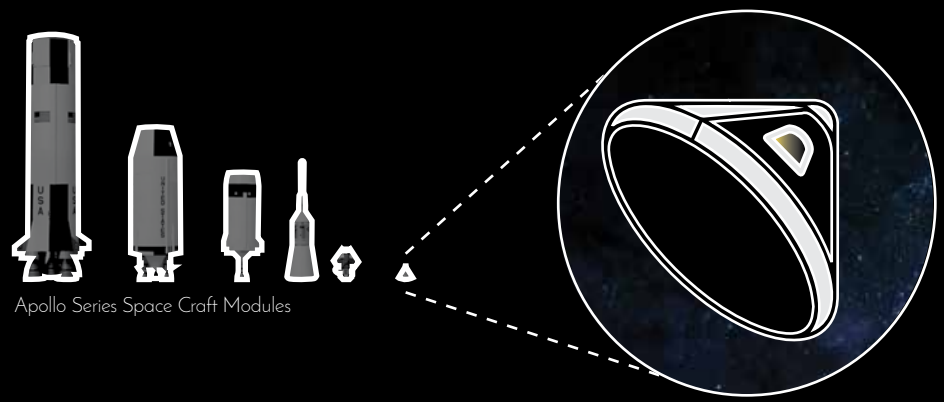
The state of being or process in which an object is aware. Typically through a form of sense, an object's understanding can be limited by both its paired and inherent reference plane. As an object shifts and reorients planes, its understanding of spatial conditions and opportunity shift with it. This is true when shifting orientation as well, as often such shifts are synonymous.

As a lens is more defined it begins to require more substantial and varying subjects. With the concepts mentioned and terms defined, the Saturn V Command Module can now be dissected accordingly. The CM is of a series pertaining to the Apollo series rockets. This early successful construct will be analyzed for what it is; its restrictions and designs serve to refine the lens further.
A crossing of realms may often be in order for these explorations. Following the CM, a look into fantasy, or more specifically science fiction, will broaden the scene and open the mind to less pragmatic possibilities. The film, 2001: A Space Odyssey will serve as this initial setting of fiction. Both the reality and the "unreal" at all instances must be examined in order to be checked, and these will not be alone in this venture.

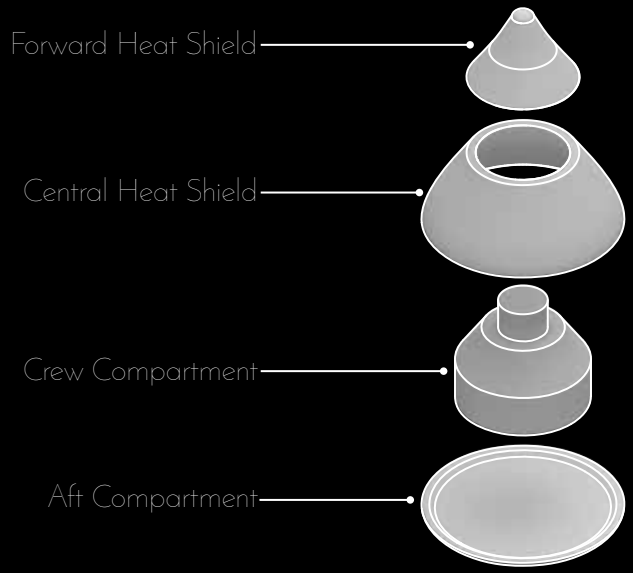
object one

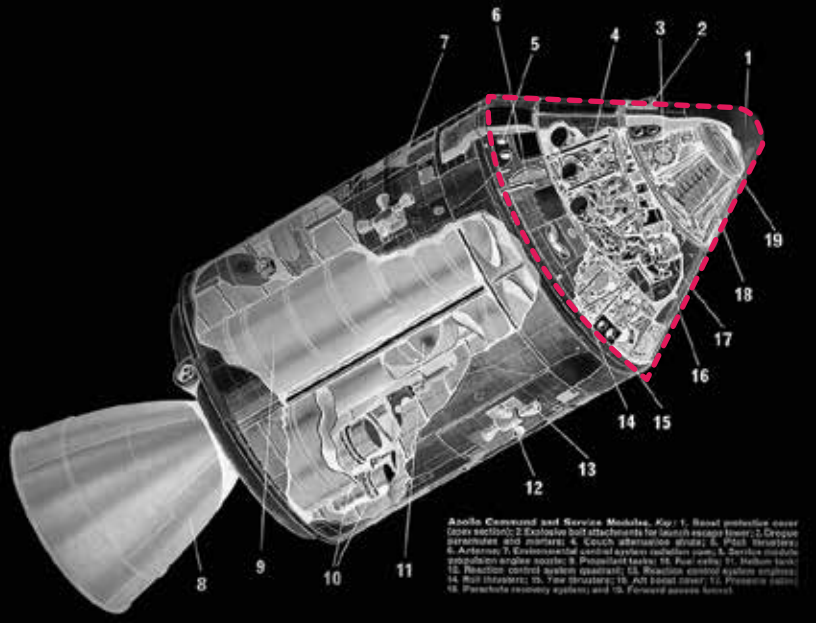
Saturn V Command Module

The CM (command module) of the Apollo series space craft is both the brains of the rocket by housing the astronauts and the vessel to carry forward towards the mission destination. As an early object designed to traverse space, first launched in 1966 and retired in '75, it bears particular interest for dissecting its orientation and user perception.

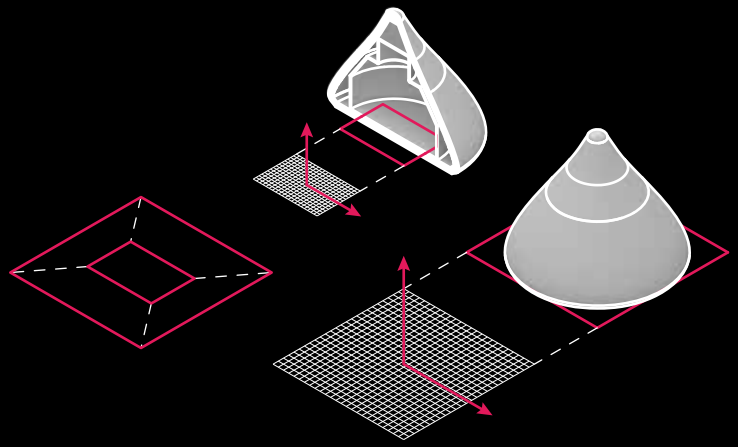


Apollo Series Space Craft Modules

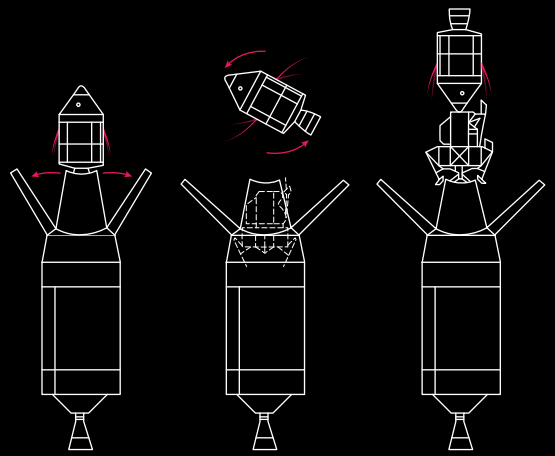


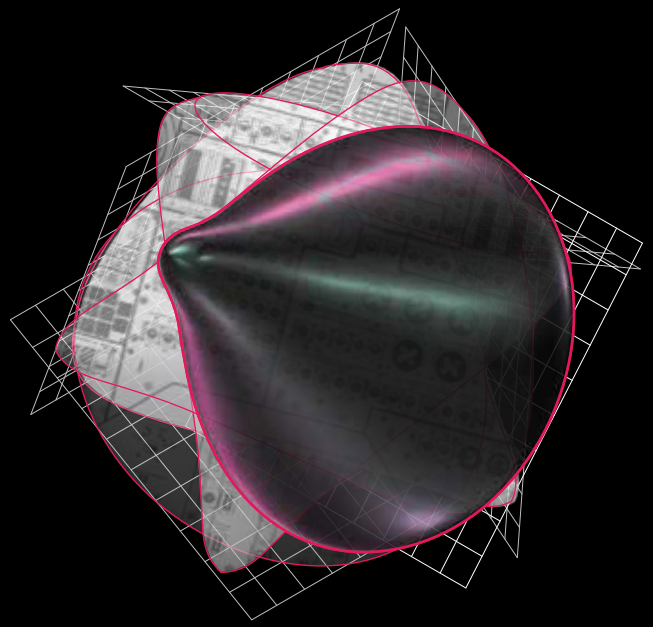


Apollo Command and Service Modules. Key: 1. Boost protective cover (open section); 2 Explosive bolt attachments for launch escape tower; 3. Drogue parachutes and mortars; 4. Couch attenuation struts; 5. Pitch thrusters; 6. Antenna; 7. Environmental control system radiation cowl; 8. Service module propulsion engine nozzle; 9 Propellant tanks; 10. Fuel cells; 11. Helium tank; 12. Reaction control system quadrant; 13. Reaction control system engines; 14. Roll thrusters; 15. Yaw thrusters; 16. Aft heat cover; 17. Pressure cabin; 18. Parachute recovery system; and 19. Forward pressure bulkhead.



Objects and users typically have their own planes of reference on which to orient themselves, often aligned by gravity. The launch process, having an optimal orientation for defying gravity, defines the original orientation. In the case of the CM, the two RP are fixed together. The initial z-axis aligns with the users' "forward facing" axis. The module then performs more as a vehicle when in zero-gravity, as both planes shift together. Globally, there is no up or down, but locally this is always fixed.





This rigid pairing of planes is what defines a vehicle, but scale is not limited by this definition. In relation to exterior objects, perception may be variable, but local never changes. More importantly, this caries forth a false sense of gravity within the immedieate space that is occupied as it remains rigid.

setting one

2001: A Space Odyssey

The world filmed by Stanley Kubrick is a playground for concepts of occupying outer space, and much more. Originally released in 1968, the array of interstellar objects it presents are not the only thing of interest. Lacking modern computer technologies, clever schemes were deployed in order to achieve the effects of occupying such environments within space.

Stanley Kubrick on set of 2001:A Space Odyssey collaged with imaged from the film

Enclosed spaces ignorant of any context

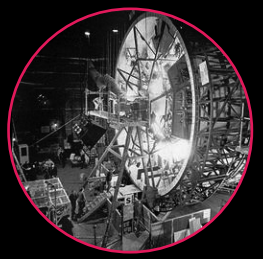
Removal of the necessity for [A] ground

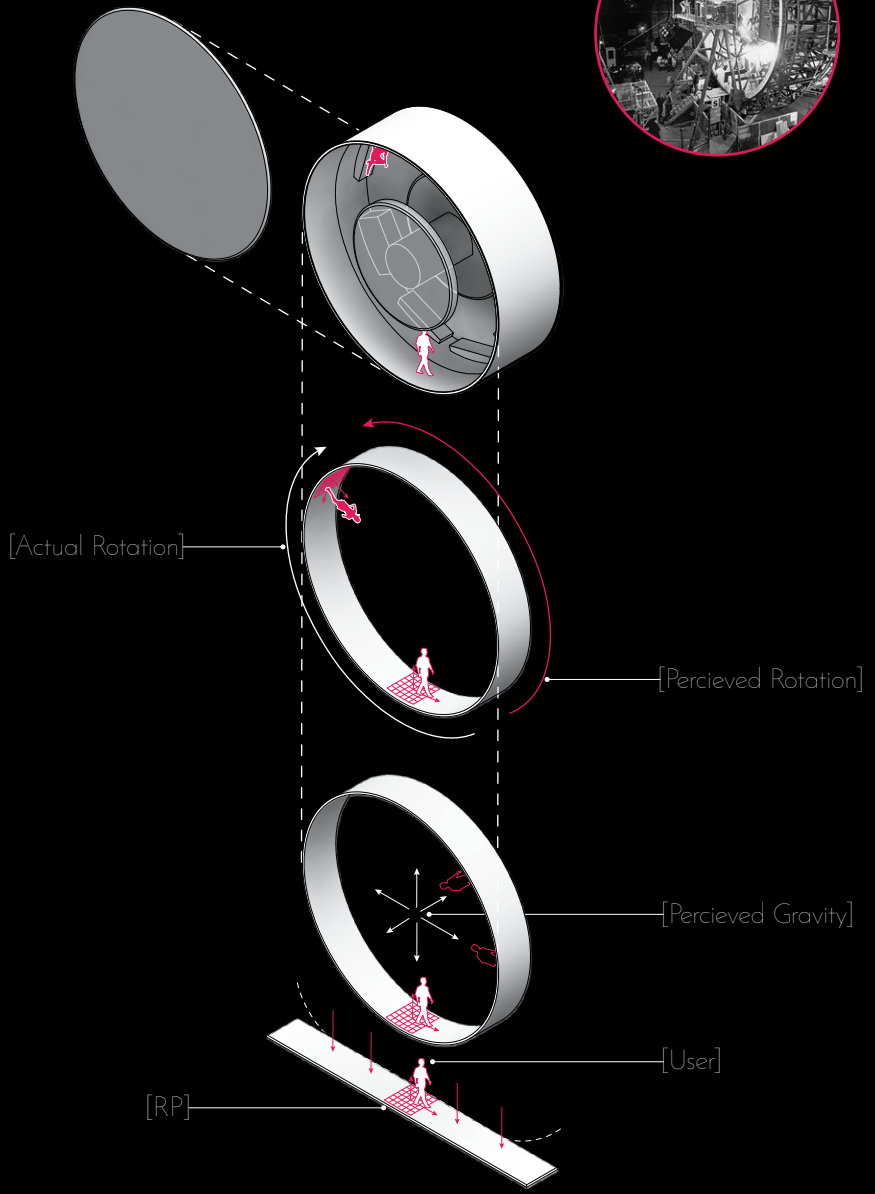
Floating in the abyss with no control

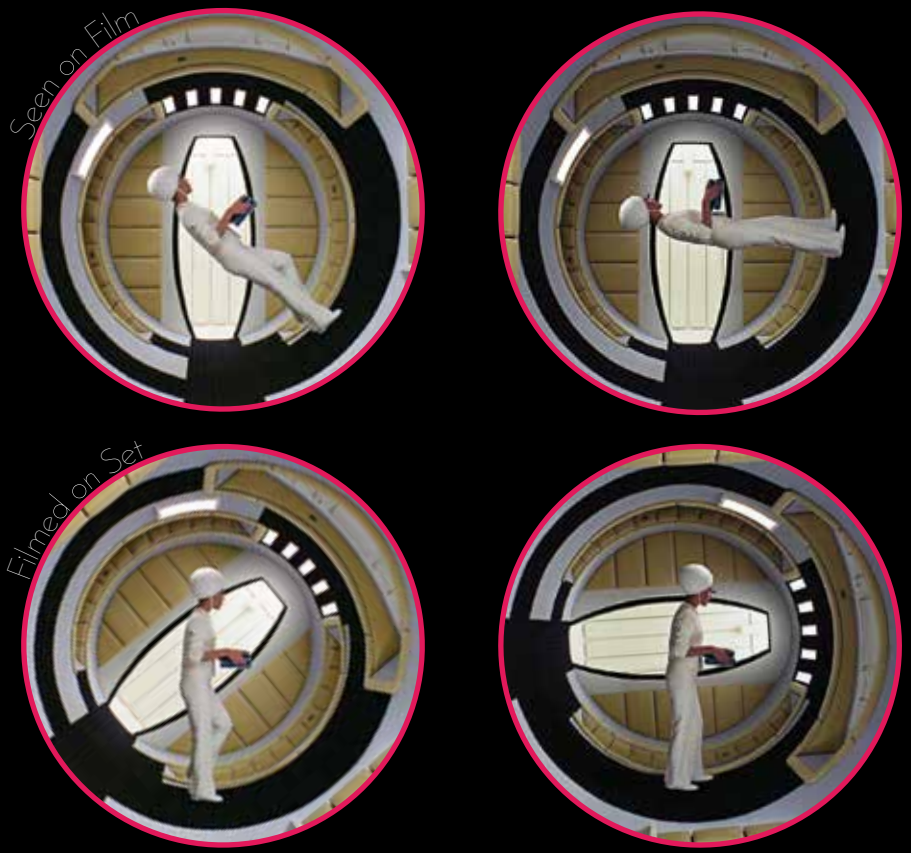
perception | comprehension | "gravity"

The concept of creating a "false sense of gravity" while in outer space has been a fantasy for a long time. One of the more realistic approaches utilizes centripetal force, depicted here as the user jogs on a rotating centrifuge of a space. In reality, the user never moves, as the hamster wheel rotates underneath. In concept, local orientation is perceived to never change due to gravitational forces, while the very object repositions the user around itself as it rotates. Through the small windows to the outside the object is revealed to be also in rotation, and perception of more global changes are allowed. Without these a false ground plane loops upon itself; up and down are relative constants.

[Centrifuge]

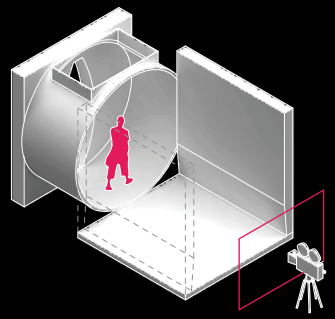


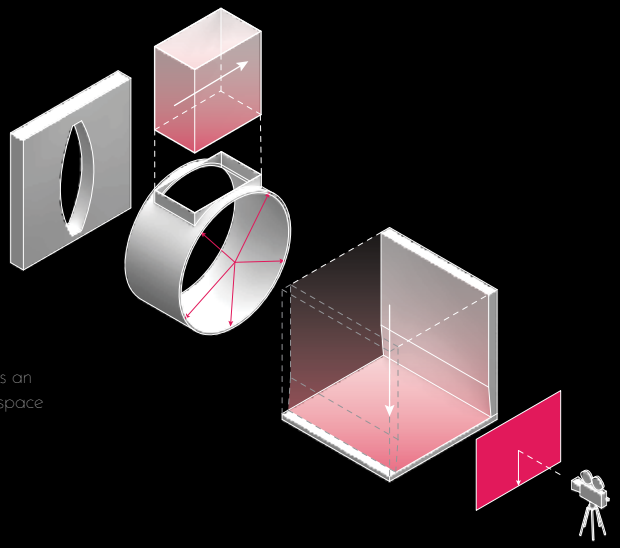




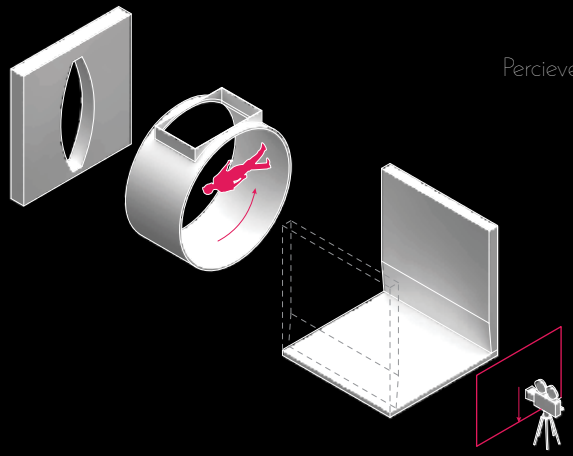
The film has a few ways of experimenting with a false sense of gravity. Here the stewardess is seen in the film traversing a crossing between two spaces with competing directions of orientation. In order to shift from one to the other, she walks perpendicular to a curved surface and into the newly aligned space. This is actually achieved by rotating the space and the camera with it as the user walks normally. In concept, there would be no way to tell who is actually doing the rotating because of a lack of exterior reference. These conditions allow for an experimentation of crossing or interacting planes and orientations, but it relies on a false gravity that not only has spatial difference and defines interaction, but requires means of shifting between those planes.

Initial State

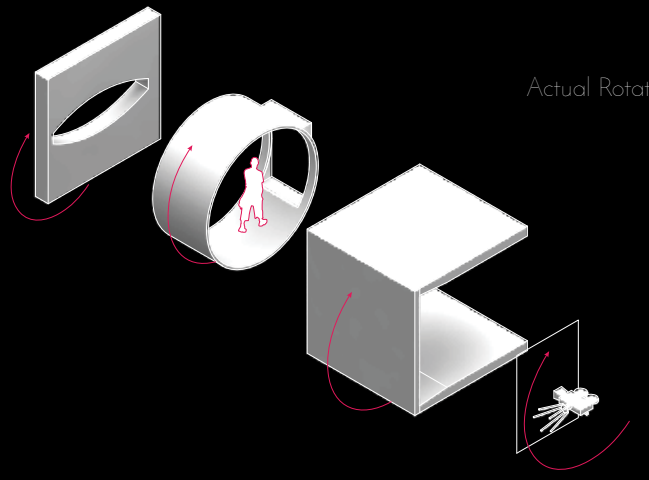




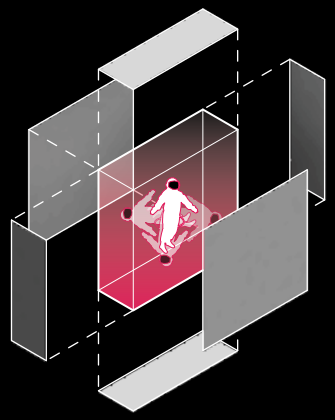
"Gravity"
Percieved orientation as an
intended occupation of space



Percieved Reality



Actual Rotation



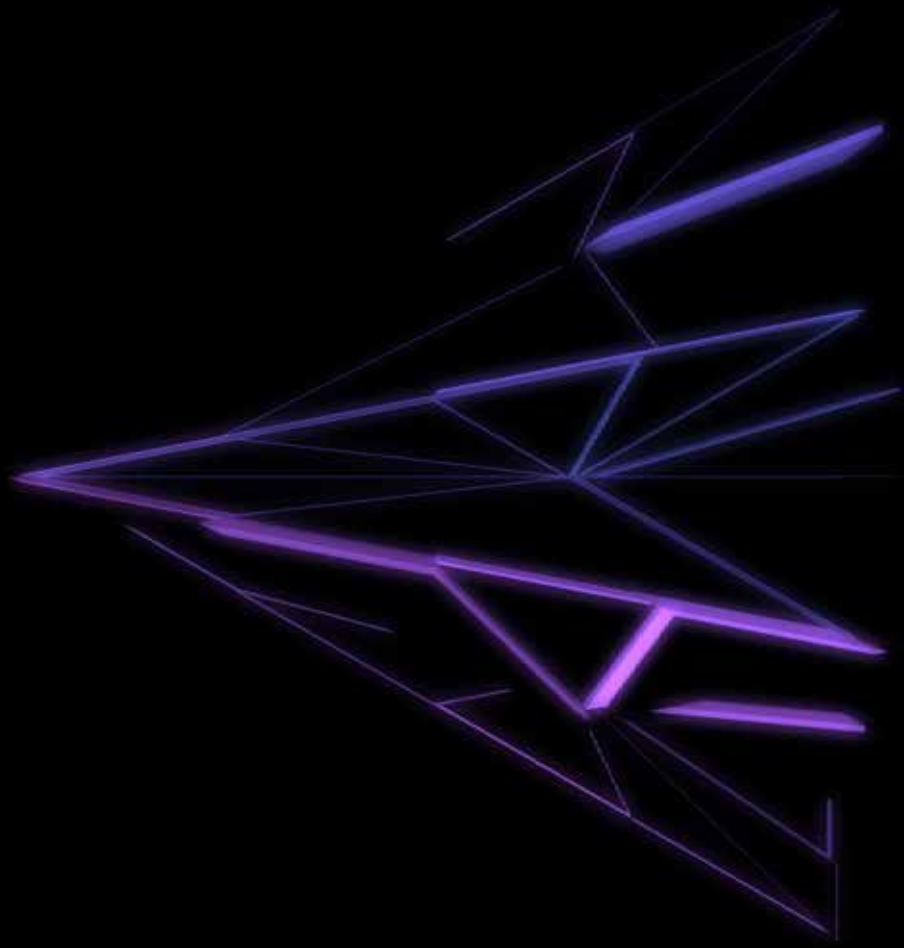
Truly the definitive way of relieving such transitions, or avoiding them depending on ones perspective, would be to eliminate gravity altogether. Early in the films depiction of the spacecraft's interior, overly symmetrical hallways are depicted (Top Left). Their surfaces entirely covered in compartments and apart from the way in which they open, they imply a certain ambiguity for orientation. These concepts continue to expand when the user reaches the red room (bottom left) where gravity disappears and every surface has a use without an explicit directional orientation other than a single axis being perpendicular. Such strategies have proven useful for zero-gravity inhabitance as seen in the current state of the INST [International Space Station] (above).

REFLECTION

It would seem that some issues arise when orienting ones' self in a space with no ground. When acting as a user does one occupy a vehicle, maintain the illusion of gravity, or find some alternative as to gain acces to some greater possibility? The very space around them, containing the dormant planes of reference, awaits activation for such possibility. With a field coming to definition and atenuated threads connecting the dots, a curated assemblage of studies requires first some speculation.

The aims for a research as this cavers several *realms* but the lens chosen seeks thoughts, contemplation, and their manefestation as "diagrams" and projection. Amongst the floating vastness of object-to-object perception, superimposition, orientation, etc., it must be asked how this begins with a translation or transference of these thoughts to something more perceivable by alternate users. Can the "medium" come before or must it materialize afterwards to avoid limitation? Is it traditional to think of such limitation as necessary? Perhaps there will always be such a thing in this *reality*, so it may be time to merge multiple.

In a place where occupation is key, orientation is realative and perception is polyvalent, it will most definitley require somethign more substatial, or rather of less material substance, for a clearer realization than this print can possibly express. When testing the limits, or endless options within time and space, something active, of greater cognition, is required. Once a cognitive realization is achieved through such experiments, it may be so for a translation between sites of single ground, multiple ground, or no ground at all to occur. For now, let it be realized only amongst the callings of outer space.



W:Blut | Polyneon 3

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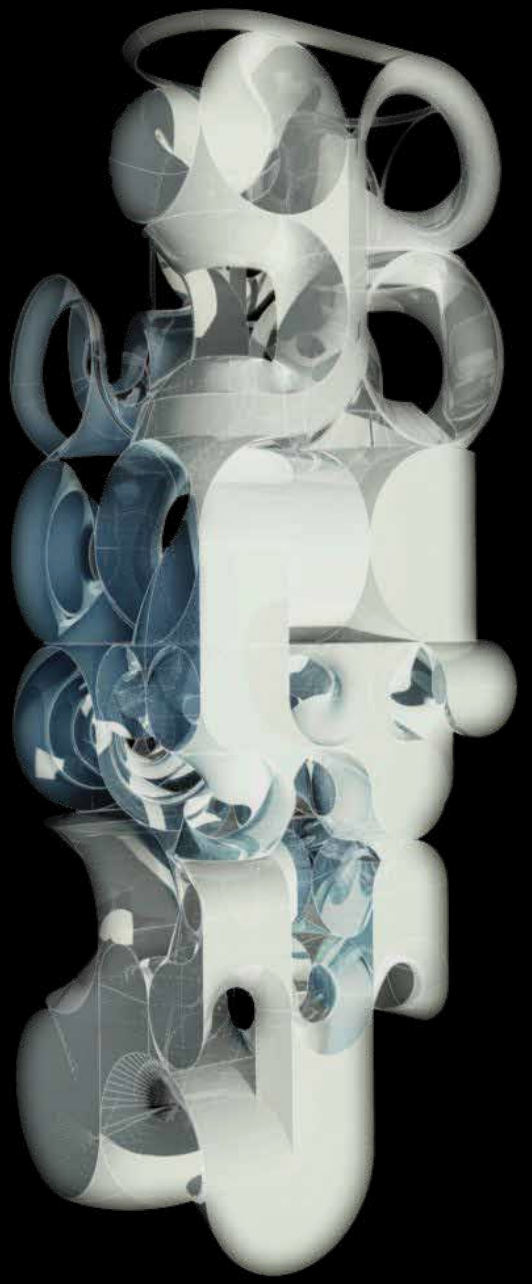

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