

Light, Materiality and Narrative; **BEYOND FORM-MAKING** in architecture

by Andrzej Zarzycki

This article builds upon a recent architectural digital design studio at the Rhode Island School of Design Interior Architecture department titled “*Im/possible spaces: envisioning a new experience in architecture, defining limits.*” The studio focused on the fluid aspects of architectural environments—environments that aspire to be exciting and meaningful, not necessarily rational or possible to implement with today’s knowledge and materials. The question of ‘what’ space was, superseded ‘why’ it was, which allowed students to promote visual and experiential components in their designs over physical and factual qualities. The computer was a natural tool for these explorations because it allowed us to visually execute impossible aspects of space. With the introduction of digital tools and an intuitive way of negotiating space, the focus shifted to

human experience facilitated through lighting techniques, materials and narration as form-making elements.

Overture

The most common expectation for an architectural space is for it to have a physical form. While it is necessary to focus on form, it is also critical to see and expect more from architectural space than just its physical structure. The goal should be to see architectural space not simply as a sculptural piece, but as a dynamic and evolving experience organized around human perception and emotions. Independent of its physicality, there are several components that affect, if not drastically change the way we engage with spaces, such as light, materiality and spatial narrative. These qualities have to be studied and

understood to create visually engaging imagery.

The intention behind the approach of the studio was for it to act as a counterpoint to broader digital design practices, where form-making preoccupies the attention of architectural designers. Those designers often perceive the architectural frontier to be exclusively related to form searching, often ignoring other qualities that are integrally connected with the way people perceive reality and register space. The search for perfect form leads to script generated designs that may or may not have any relevance to us as clients and participants in an architectural space. The overemphasis on sculptural form-making comes at the price of pursuing light, material studies and developing symbiotic relationships between forms, texture and light. Realizing the



Figure 1: Developing a visual sequence.

shortcoming of formal studies alone, while stressing the experiential aspect of architectural spaces, such as being in a space subconsciously like in a dream or narrative, demands more depth from our spatial experience.

Studio Focus

While this design studio was concerned with digital explorations of spatial impossibilities, we quickly realized that these impossibilities had to be understood in a broader spectrum of design and applied to all aspects including experiential components, such as materials and lights. To further emphasize this concern, the main design project was preceded by two design sketch problems that focused exclusively on lighting and architectural narrative. This singular and directed focus helped

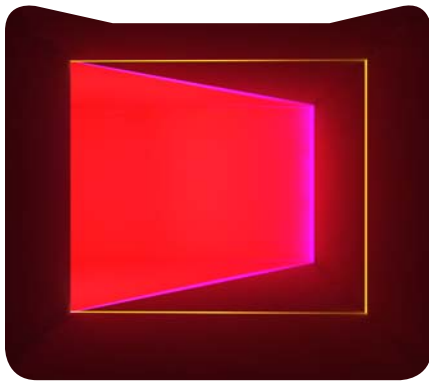


Figure 2: Milk Run III installation digital “Re-creation”.

students to work exclusively on non-form related aspects of architectural spaces, while developing visual techniques to portray them (figure1). As a result of this centered approach, as well as bringing a broad range of references from other disciplines outside architecture, students started to gravitate toward unorthodox uses of various software packages. Through combining them, students were discovering new ways of creating digital spatial narrations. This resulted in projects that paralleled Jean Michel Jarre’s comment regarding his 1986 Houston concert: “... there is a real statement to be made by mixing music with architecture in a very modern way and using state-of-the-art technology...” [1]

As a result of these sketch problems, students became aware of how light and materials can become a space independent of form. Furthermore, with digital technology we were able to imagine

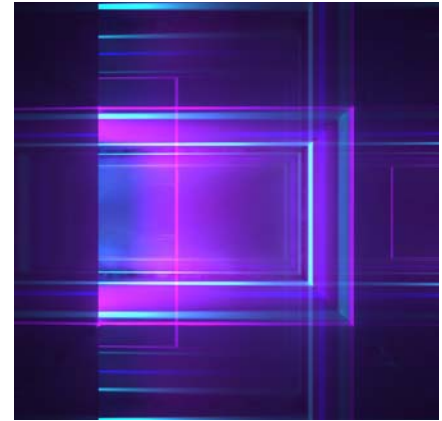
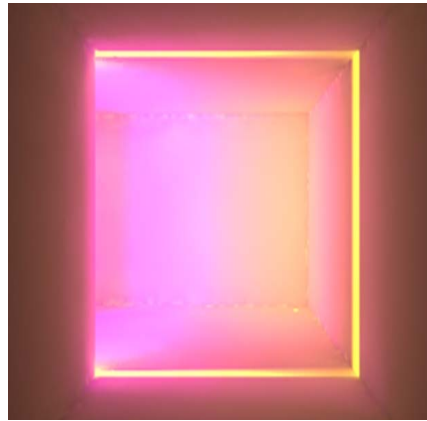


Figure 3 and 4 : “Beyond Turrell” spatial solution.

and explore material possibilities that may or may not be physically feasible just yet. Simultaneously, material explorations can inspire and set new directions for material research. Lighting is also an unexplored aspect of architectural space. With digital tools we can explore possibilities that are not limited to the physical properties of light. All of these individual aspects like light, materials and spatial narrative can together contribute to a new understanding of architectural spaces within digital environments. As interior architects, it is important to think about how mood contributes to the perception of form. It is equally important to develop a visual narrative that considers how we function in a space psychologically to reconnect architecture with human experience.

Students in this design studio approached spatial *im/possibilities* from a variety of different vantage points. Some students started with spatial narratives or light explorations, while others used materials as a vehicle to express spatial qualities. The following case studies illustrate these various approaches. Additionally, two personal student accounts, discussed below, share their experiences with digital design and elaborate in detail on their design process.

Light Studies

The sketch titled “Beyond Turrell,” is an example of a light study as an unconventional space maker. Students were first asked to recreate within a virtual environment one of James Turrell’s art installations. Turrell’s work strongly related to the design studio’s underlying concept to use light as a space maker. James Turrell’s light installations, both on artistic and conceptual levels, are able to evoke strong spatial experiences within simple and neutral architectural enclosures. The artist said during an

interview “...if you want to get away from the particulars of the architecture, with its detail and attention to form, so as to make an architecture of space, then I have to rid the space of those details and features that call attention to form.” [2] In this sense, he states that architectural form may often compete with light in rendition of space.

This first phase of the sketch problem helped students to relate digital tools and properties of digital lighting to those in the real world. By introducing real world limitations in lighting tools, this created necessary design and educational rigor to better understand the difficulties the installation artist works within real life situations. This “Turrell Re-creation” became a springboard for the second part of the sketch problem where students explored the spatial possibilities of one particular installation by introducing lighting properties that, while possible in the digital environment, are not physically possible at the moment. This broadening of light properties helped students to create spatial propositions that went beyond our usual expectation from space. It also gave students tools and a methodology for future design projects by demonstrating how to transform prosaic to innovative and poetic spatial possibilities. The final result were spatial delineations that were visually convincing and intuitive, although currently not physically possible.

On the educational and conceptual levels, seeing the diversity of spatial renditions of the same neutral architectural form reinforced this core idea of light being a critical form-maker. This can be seen by comparing the digital ‘re-creation’ of James Turrell “Milk Run III” installation (figure 2) and several ‘Beyond Turrell’ images (figures 3, 4) that use the same virtual space, but with different lighting scenarios.

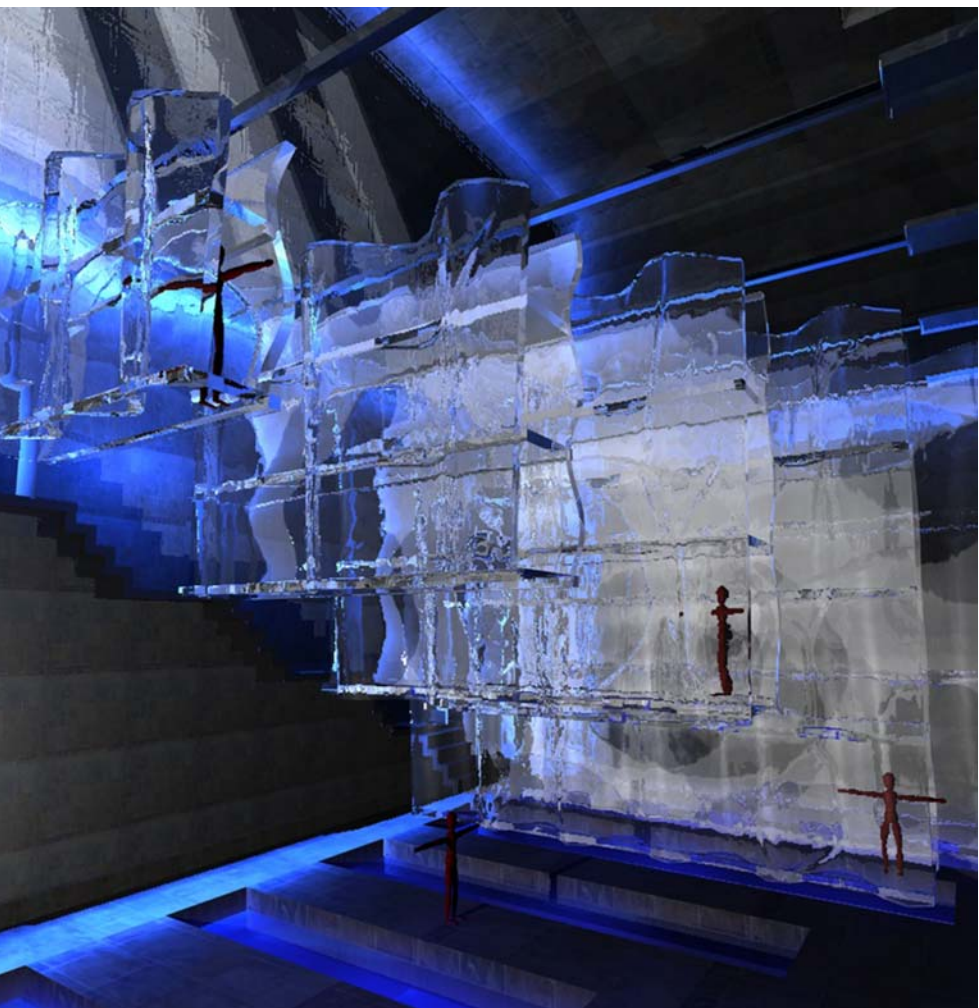
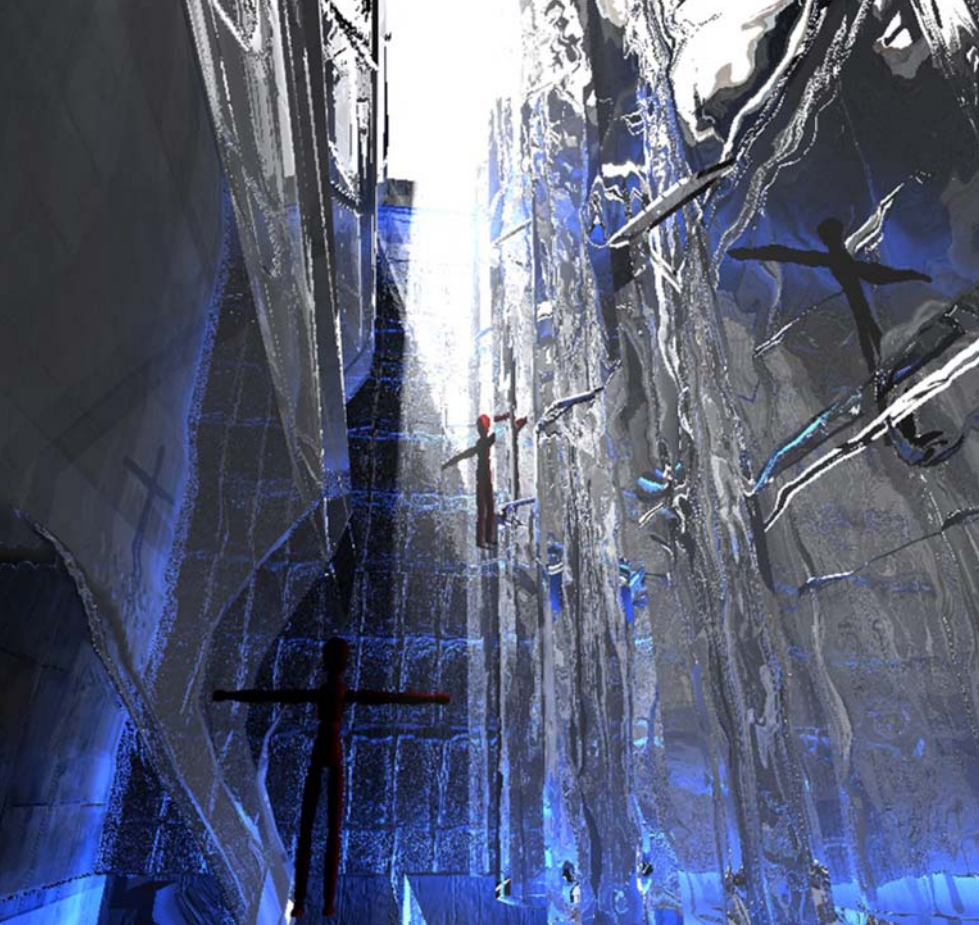


Figure 5 and 6: Liquid glass or frozen waterfalls?.

Material Studies

In a separate project, material studies were used to explore relationships between material and form, as well as light and form, resulting in spatial narratives with a strong experiential component (figures 5, 6). Students investigated unusual physical characteristics, morphing properties and animated textures often asking the question “what if...”

These explorations continuously crossed lines in what is physically possible with today’s building technology and formed strong propositions toward future material research. In the *Im/possible Spaces* studio students questioned what is physically and technologically possible while they created visuals that connected easily with the viewer and were consistent with our expectation from reality. Furthermore, it proved a successful methodology in conveying to students how to use digital simulations as creative tools in the design practice.

Spatial Narrative

It is important to use narrative in conveying architectural ideas. Traditional methods of depicting architecture through plan, elevation or section while suitable from a construction viewpoint, do not convey an experiential component within architectural space. In many instances a narrative can be a powerful tool for exploring space and imagining design possibilities. Not unlike filmmaking and media arts, it can often lead us into territories that are not easily reachable through other design approaches such as tectonics. This creative capacity is expressed by one student through his narrative:

“...The idea behind my intervention is to create an awareness of progression by way of defining ephemeral boundaries that highlight the tectonics of space. The incorporation of weathering materials is a way to relate this intervention with the existing space and illumination that changes at intervals function as a metronome that marks time. (...) After being aware of the space, as a whole, one cannot inhabit the space anymore for it will be already transformed into another space.” (Victor Serrano)

Still, there are other types of narratives, not necessarily verbal ones that could be best expressed visually (figure 7).

The introduction of a spatial narrative automatically refocuses the discussion in architecture from the depiction of a form into the realm of experiencing it. The

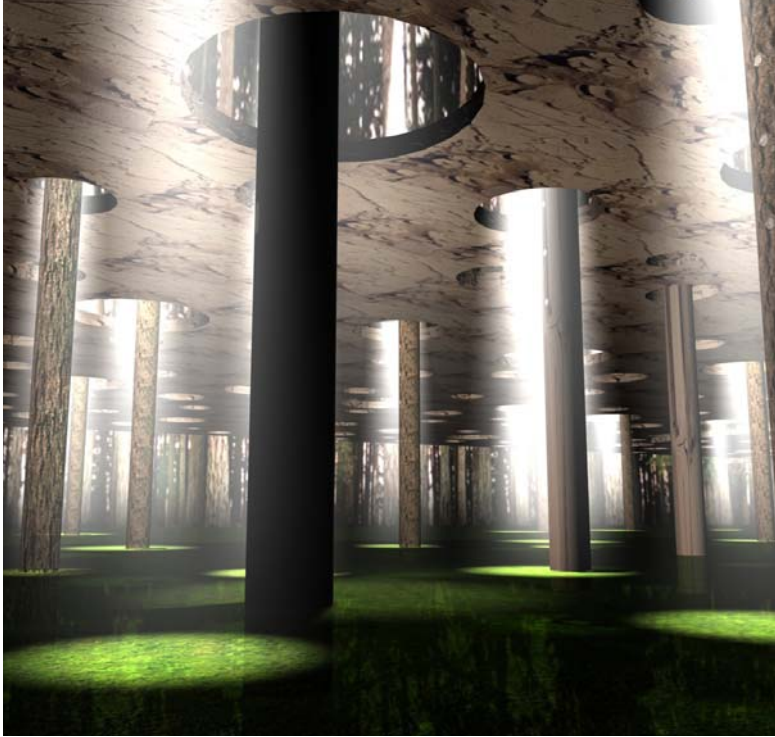


Figure 7: Public Sanctuary.

purpose of spatial narrative is to tell the story of a space to an audience and perhaps, to suggest possible ways users could engage with a space (figures 8, 9). Interestingly, with the digital medium user engagement becomes much stronger and effortless in early design stages before the space is built, due to the narrative's strong visual character. The potential viewer is already familiar with other types of narratives through our ever-prevalent television and movie culture. This congruency of digital representation to cinematographic media shares similar successes by being more intuitive to an audience than two-dimensional, line projections found in architecture such as plans and sections.

Spatial narration re-introduces to architecture such elements as gateways, portals, thresholds, and dominants that are similar to those in public space planning and supplement formal categories such as ratios, proportions, orders, etc. Spatial narratives that are reinforced through animation is the closest a viewer can get to touching, sensing and perhaps even tasting space. This unique and intuitive form of expression is realized through more than just perspective projections, it is also through space immersions and an impression of spatial engagement through movement, scale and interactivity with space. More importantly, from the designer's standpoint, creating a storyboard for a prospective user's experience of an architectural space sets up a new set of expectations in design (figure 10).

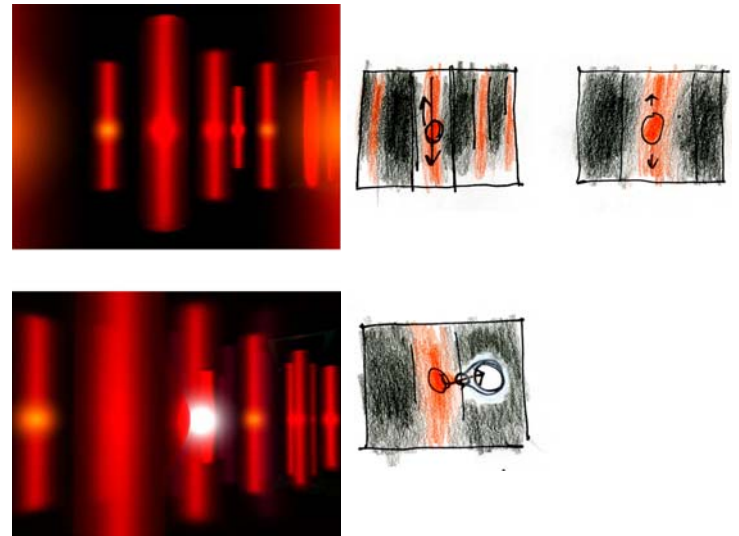


Figure 8: Storyboard sketches and animation frames.

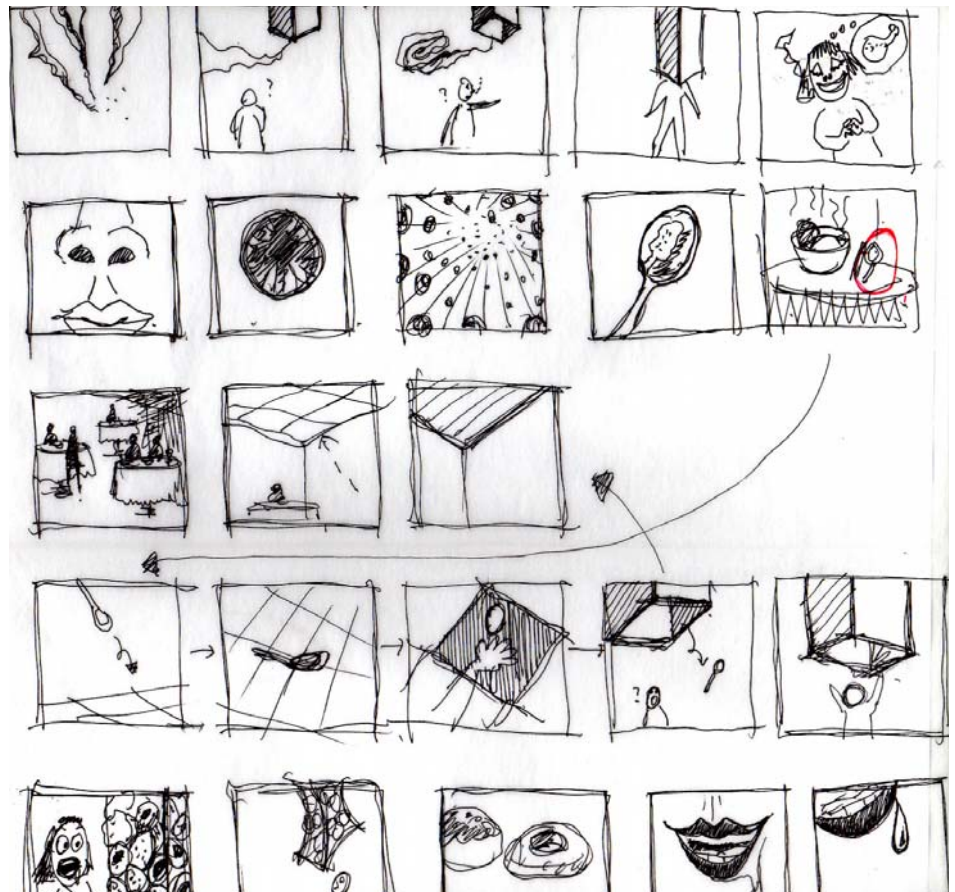


Figure 9: Storyboard.

Accounts by students

Often times I find myself working back and forth between sketches and computers to implement a concept. The hardest part of the process is to generate tangible forms out of an abstract thinking. It was a continuous process of creating visual imageries through sketch and computer in order to make that leap from concept to form-making.

While working on the Public Sanctuary project, I was given the site pre-modeled in **form•Z**, but as I proceeded through the project, my design evolved and the need to re-model the site in **form•Z** emerged. I could have only modeled the parts that I was re-designing but in order to understand the spatial qualities of the architecture, I ended up modeling the whole thing. I would export a few perspective shots of the space from **form•Z**, bring it to Cinema 4D, play with texture and animate it. If I felt that something was missing (which often was the case during the initial process) from the final outcome of the image or animation, I would go back to **form•Z** and re-define the spatial qualities of the space, keeping in mind my concept for the project. Once the main concept was outlined, it was a continuous process of editing and re-designing the space in **form•Z**, animating sequences and adding texture and light in Cinema 4D and manipulating the imagery in Adobe Photoshop (Shraddha Aryal '07) (figures 11, 12).

The increased use of computer graphics in today's design practice often causes a disconnect between the creative process and the product. In the Department of Interior Architecture at the Rhode Island School of Design (RISD) I had the opportunity to explore this kind of approach in a studio environment. The experience gained through the advanced digital design studio allowed me to bend some of the preconceived ideas about the computer as a way to approach a design problem. Applying a process that incorporates film production techniques such as through creation of storyboards, I was able to explore the idea of developing a spatial narrative through camera movement, light and materials in a way that architecture became less real and more evocative. In addition, hand sketching was incorporated into the renderings and back by way of printed images that allowed the exploration of textures, which were incorporated again into the material maps. Computer



Figure 11: Narrative Space.



Figure 12: Public Sanctuary.

images were also used to generate and iterate various ideas in a way that resembles a sketching process. This design method is useful to understand spatial relationships and variations on the ideas that can be achieved rather than portraying a realistic view of a final space. (Victor Serrano '07) (fig.13, 14)

Conclusion

Im/possible spaces was a fully digital studio. All communications and final presentations were delivered digitally using still images, panoramic images and animations. Design delivery was consistent with the cinematographic conventions that address human perception and evocative aspects of architectural space. The most satisfying realization in pursuing *im/possible spaces* was that even though some designed spaces are not physically possible according to laws of physics, such as the well known scene with the medicine cabinet from the 'Contact' film [3], they are easy to subscribe to and engage the viewer to the point that this impossible reality is no longer questioned.

While Turrell's work was the subject of the studio sketch problem, the studio

discussed broader precedence in the use of light as a part of spatial choreography in a wide spectrum of examples from Albert Speer's "Cathedrals of Light," to Jean Michel Jarre concerts and visual effects. While many of the references originated from various visual and performing arts, they were constantly brought back into an architectural context to broaden their architectural language and set of design expressions. Students' work reflected a greater understanding in architecture and resulted in more meaningful projects.

The idea of conceptualizing space in a digital environment was perhaps the most significant part of this design studio. This conceptualization brought a new set of expectations and possibilities toward architectural environments especially those conceived by digital means. Light and materials as well as spatial narratives emerged as critical components in form-making. The physical form was no longer an independent category that dominated and grounded all architectural expressions in its singularity; on the contrary, it became symbiotically related to light and materials that enhanced the form. Through this process, we learned that all tectonic explorations should consider and

understand the interdependence of all design components. Light and materials should be used to define, create and manipulate true perception of space not simply as decorative components in space. Finally, this enriched reading of architecture brought back to its center the most critical component and focus of design – human perception and human experience.

References

- [1] Jean Michel Jarre: Oxygene Moscow, DVD; "Making the Steamroller Fly", Title 2/3, Chapter 5/10, 22m:50s.
- [2] *Occluded Front James Turrell*, Interview with James Turrell, p.14, 1985 by Fellow of Contemporary Art, Los Angeles, The Lapis Press.
- [3] *Contact*, Movie, Chapter 7/43, 22m:30s; director Robert Zemeckis, photography Don Burgess.

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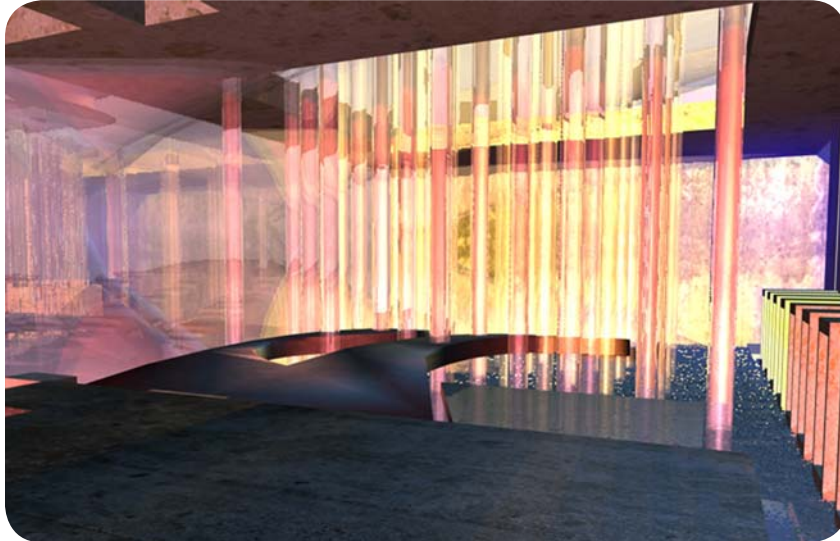


Figure 13: Narrative Space.

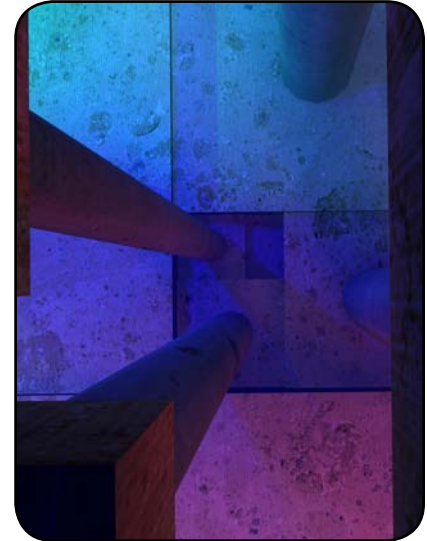


Figure 14: Public Sanctuary.



Andrzej Zarzycki is a Boston based architect and educator who employs digital tools to create experiential architectural spaces. He brings over 10 years of design practice combined with design teaching in the Interior Architecture Department at the Rhode Island School of Design. Research and experimentation is important component of Zarzycki's practice. His focus is primarily on design methodologies and architectural representation of space. Since 1996, he was part of the Architecture, Representation and Computation group at MIT. While there, he produced video presentations of Unbuilt Monuments for MOCA, Siggraph and other venues. At R.I.S.D., he teaches advanced digital design studios. Zarzycki has also published several design process and digital conceptualization essays. His speaking engagements include: Cinematic Approach to Spatial Narration; Build Boston 2006; Abstracting design, designing abstractions; Use of computer graphics in early stages of architectural design; Siggraph 2004; Digital Technology and Design Process, Build Boston 2001. Zarzycki is recipient of multiple professional awards in architectural representation and has also been recognized in various design competitions. Andrzej Zarzycki earned his Master of Architecture from the Technical University of Gdansk, Poland, and Master of Science in Architectural Studies from Massachusetts Institute of Technology, Cambridge, MA. Email: zarzycki@alum.mit.edu. Web Site: www.virtualimaging.com.