

Architecture in the Digital Domain: From Arctic Images to Desert Dreamlands

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Let me confess to my propensity for the real imitation of Las Vegas as a city to experience over experiencing the fake reality of a Hollywood movie.

If you had to choose between a genuine cubic zirconia and an imitation diamond what would it be? It's a tough choice, but surprising one we find ourselves making all the time.

Will it be non-dairy liquid milk or powdered creamer? For me, all you need to do is scan my Ralph's supermarket card to know what my habits are, my daily subconscious decisions. Now-a-days, people crave extra sensory stimulation. Architect Jon Jerde and film maker Rob Legato are both inventing narrative spaces to satisfy this desire: one an actual built space in Las Vegas 'Fremont Street'; and the other a 3-hour feature length movie the 'Titanic'.

As a result of today's narrative spaces, the relationship between sound, graphic signs, and space has grown more and more ambiguous. In this respect, experiments carried out by Jerde and Legato will prove to be a catalyst for designers who seek to go beyond conventional categories. Hopefully, looking at the work of these individuals widens the scope of architectural inquiry.

Both individuals have a common approach (using digital technology) which puts the essentially elusive nature of the creative act, over and above the traditional opposition between design and technology, to the test.

Questions to explore are: Will shopping malls break through their outer shells and evolve into late 19th century cities? Are big budget effects films early or late in their development? Once the theories and practices for narrative spaces mature, I hope that we find a broader, clearly different range of stories and spaces that rely on special effects.

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Will it be non-dairy liquid milk or powdered creamer? For me, all you need to do is scan my Ralphs supermarket card to know what my habits are, my daily sub-conscious decisions. Now-a-days, people crave extra sensory stimulation. Designers Jon Jerde and Rob Legato are both inventing forums, or scripted spaces/experiences, to satisfy this desire: one an actual built space, the other a three-hour feature length movie. The two men in question have never met, but both have pushed and pulled what their jobs normally entail by propelling beyond their usual scope limitations and re-defining their roles as creators.

The entertainment industry merits study simply by virtue of its enormous presence in our lives. Filmmaking is a powerful economic force with almost ninety percent of Hollywood films containing visual effects (FX) in some manner, shape or form. Many are subtle and unnoticeable, such as "Driving Miss Daisy," others flamboyant and eye-catching, such as the "Terminator." From the late 1950's to the late 80's, you and I, the taxpayers, poured money into first, the space program, and second, the defense industry and encouraged developments in science and technology. In today's economic environment, the entertainment industry is pouring an unbelievable amount of hard cash into the digital realm with FX houses creating full-fledged R & D departments in order to keep up with their competitors. Architects are now embarking on similar growth and change.

Recently, for many creative professions, the evolution from a mechanical to an electronic process has reached a crucial point which means either you go digital or you go out of business. The fast-paced shift from: 1.) The *Mode of Production*-imitating the human body, to 2.) The *Mode of Information*-imitating the human brain-is dramatic.

Our natural tendency to develop instruments to imitate our own function is being replaced by a desire to reproduce our mental ability, bit-by-byte, in electronically mediated communication systems. Architects are still struggling with this shift and have been slow in changing their way of thinking-the tried and true design process of yesteryear. The tool making inventors that once controlled the FX industry by dealing with such classic mediums as concave / convex glass lenses, machine-parts, projection screens, oil paints, motors and so on, are now being challenged almost on a daily basis to re-think their jobs or lose them.

For architects, two-dimensional computer-aid design (CAD) is commonplace, but on the whole, architecture as a profession is not a sophisticated user of information technology. However, if you take a look at the work of visionary Jon Jerde, you will find an architectural firm that for the last twenty years has been developing theories and methodologies quite unlike its contemporaries. Jerde explains the firm's philosophy by stating that he is not concerned with the evolution of an architectural style, but rather with the evolution of an idea. The content of his ideas focuses on communality and experiential place-making, not on object-making as is most often the case in architecture. Jerde's goal is to bring civility, continuity, and connection to the chaotic built environment in which we live today.

Jon Jerde introduced the process of addressing a problem with a consortium of people from many fields; a methodology of channeling human talent and knowledge into a unique communal working style called co-creativity. Co-creativity, as practiced by his firm, brings together remarkable people of diverse talents. Among these creative talents are film directors Steven Spielberg and George Lucas; writer Ray Bradbury; artists Robert Graham and Lita Albuquerque; and architects Jean Nouvel, Cesar Pelli, Ricardo Legoretta, Craig Hodgetts and Ming Fung.

The Fremont Street Experience is a project the Jerde Partnership designed in the historic heart of Las Vegas. The concentration of casinos clearly contrasts the character of "the Strip" where major gaming facilities are typically separated by distances that discourage movement other than

vehicular. Inherent in this contrast is the seed for making Fremont Street an urban theatrical experience. (Figure 1) In an abstract sense, the existing archeology can be considered the stage proscenium, ready for the attraction-the performance that draws the audience. As conceived, the project redefines the ground and the sky planes of the street by stretching a ninety-foot electronic billboard between two buildings upon which lighting effects are displayed to provide visual and auditory stimulation.

The challenge of Fremont Street was to create a light show that would smoothly articulate across a span 1,400 feet long and 125 feet across, all the while accompanied by a soundtrack that stays in sync with the movement of the lighted animation. (Figure 2 + 3) Contractors, ranging from the world's largest sign company to a Hollywood producer of MTV music award shows, were part of the co-creative process adding the technical know-how.

The film industry, on the other hand, is very different. Computer generated images (CGI) play an important role in the production of all films, but relatively little in their design. Visual and special effects are, in fact, primarily the technological side of film-making that focus on how to create a desired effect. Take a milestone FX film like "Jurassic Park", when you cut out the CG dinosaurs there isn't much else for an audience to sink their teeth into. Plot, theme, character development? Up until the most recent film "Titanic," movies like the "Fifth Element," "Terminator," and "Species" all relied purely and simply upon visual effects. "Titanic" is a film by James Cameron that retells the story of the 1912 maritime disaster incorporating actual on-site footage shot with underwater-modified cameras. What separates "Titanic" from previous FX films is that the effects evoke feelings within us not usually called up by this genre. What is interesting about Rob Legato, Titanic's visual effects supervisor, is that he has carefully chosen films that are not the usual creature-feature "bang 'em up, shoot 'em up" films that typically rely on visual effects. Legato's direction during his tenure at Digital Domain working with James Cameron, has been to create a cohesive experience by integrating the design tools of visual effects with all the storytelling elements of a film. Legato's strength is an ability to achieve the seamless imagery of "Apollo 13" and to create story

enhancing, believable imagery like that of "Titanic."

There is a digital stigma where digital shots look like rock candy - everything in the image is too perfect. If a car, for example, is an important feature within a shot, an enormous amount of energy is needed to digitally create dents, dirt and oil drippings (the things of reality) to convince the viewer to believe and not question the image. In essence, the subliminal sense that the viewer brings to the theater is the armor the FX supervisor has to pierce to make the shots believable. This is the hurdle that a filmmaker must jump over by conquering the principles of motion.

Through the basic principles of motion, we know that motion is broken down into 24 frames per second. Therefore you can manipulate 24 frames and wind up with a second of motion. According to Legato, "In visual effects, what a filmmaker is trying to do at all times is mimic the artifacts of a motion picture camera operating at 24 frames per second: not by trying to imitate reality, but reality as interpreted by the camera." The principle of motion is exactly the same in the digital realm, but the beauty of it is that with digital information, the picture frame is broken down into millions of pixels. Every pixel or picture point is separately addressable within the frame at a very high resolution; therefore, we are gaining the ability to obtain complete and absolute control over the image.

Throughout the "Titanic" process, Legato studied tides and the movement of water, human anatomy, action and facial emotions; and various wind and weather activities. As you can see in the illustrations of Shot 139 in "Titanic" depicting the CGI sequence of the ship's hull, as well as Shot 139.30 depicting the Deck, the portrayed reality is uncanny. (figure 4 + 5) Each shot has layers and layers of information. Take color as one component: first blue shades are added separately, then green, then red, then a spectrum of RGB, all under the scrutiny of a visual effects supervisor's expert eye. (figure 6) Whether or not you liked the overwhelming plot of love story in the midst of chaos (not to mention the overtones of sophomoric conversation), the seamless CG images created in "Titanic" were phenomenal and earned Legato an academy award this year.

Right now in film, specifically in visual effects, it appears that anything is possible if you throw enough money or time at the task in question. As creators, we all have the tools, or we can combine tools to do anything. This does not mean that it's easy, straightforward, intuitive, or cost effective. However, it is in the best interest of architects to recognize the need to create a cohesive field from disparate tools and to less cautiously begin the evolution from the Mode of Production to the Mode of Information. Most commonly suggested is that architects should subscribe to Moore's Law that suggests production speed doubles every eighteen months and factor in costs dropping by half during the same timeframe.

As you can see in the thematic experiences of Fremont Street and "Titanic," the relationship between sound, graphic signs and space has grown more and more ambiguous. In this respect, experiments carried out by Architect Jon Jerde, and Special Effects Supervisor Rob Legato, will prove to be an invaluable catalyst for architects who seek to go beyond conventional categories. Hopefully, looking at the work of these individuals widens the scope of architectural inquiry. Both individuals have a common creative approach which puts the essentially elusive nature of the creative act, over and above the traditional opposition between design and technology, to the test.

Figure 1
Fremont Street Experience: the vaulted canopy is semi-transparent to allow for 50% sun-screen during daylight. The play of shadows add movement throughout the 1,400 foot long street break-up the monotony of the spanning street.

Figure 2 + 3
Fremont Street Experience
Different 8-Min. show every hour

ALL PHOTOS TO BE CREDITED: label - (JP11)-

Figure 4
Hull Shot: SS139 deckF2

Figure 5
Deck Shot: SS139.30 6T2 jrshpsc.0030

ALL TITANIC IMAGES (COURTESY OF DIGITAL DOMAIN)

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