Fantastic Architecture

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This paper documents the approach, process and results of several architectural design studios where the author introduced science fiction (broadly defined) and three computer experimental form modelers as 'creative stimulants' in the pursuit of Fantastic Architecture. The paper is not about whether architecture students should or should not pursue the design of 'implausible', 'absurd', or even 'bizarre' architecture, but about using a particular strategy as a sincere attempt to stimulate imagination and creativity.

Design process, modeling, form generators

Introduction

There is no question that science fiction has had a tremendous impact upon architecture. It is hard to forget Fritz Lang's Metropolis (A film by Fritz Lang first released in 1927) stunning visualization where one sees a faceless working class multitude working underground while above ground a towering city becomes the playground for the privileged. After looking at this 1926 masterpiece, who can not keep dreaming about the elevated trains and the flying machines set against the architectural paradise of the future? While watching 77 years of cinematic production, accompanied by thousands and thousands of images produced as cartoons, storyboards, books and articles of all kinds, one has to think about how strong and embedded in our collective psyche this endeavor has been over time. As Russian author Yuli Burkin wrote"Reassured and enlightened, I peacefully wandered along the bookshelves. After all, there's so many imaginary worlds! And I'm inclined to think that living there is way more interesting than in the real world' (http://www.rusf.ru/english/).

The Experiment

Connected with the wonderful theme of the SIGRADI conference, the author has been extremely intrigued by the architectural implications of fantastic architecture production. After all, all those science fiction stories and actions have to take place somewhere, don't they? And, this 'somewhere' is, after all, architectonic. So, in the late 1980's the author began experimenting with science fiction imagery in order to stimulate the creativity of students. In its most current incarnation, the experimental 'Fantastic Architecture" studio begins with a series of 'imagery fertilization' sessions where the participants search, explore and present their findings in the form of a careful study of the backgrounds and settings used in the production of science fiction media including literature and film.

Once the imagination of the participants has begun its immersive process into the realm of fantastic architecture, a concurrent quest is initiated. Here the question relates to the validation of perceived qualities. In other words, the simple imagery is not simply accepted and adopted. This would be too easy. The participants are then asked questions about meaning, about practicality, about pragmatism. The idea is not to extinguish the creative process, but to attempt to find those schemes with a higher probability to be executed in real life.

The Process

Running parallel to the science fiction immersive process, students begin to play with digital experimental modelers including real-time 3D modeling and animation tools that allow them to generate smooth-surface mesh objects for use in humanoid and other organic modeling tasks. Other applications include HyperFun which supports FRep modeling of 2D, 3D, time-dependent and multidimensional objects like blobs,

convolution surfaces, CSG, and sweeps. Some students have played with an application curiously named Milkshape 3D that offers basic operations like select, move, rotate, scale, extrude, turn edge, subdivide, just to mention a few. MilkShape 3D also allows low-level editing with its vertex and face tool. This particular tool is a wonderful way to edit the complex geometry that often comes with fantastic imagery.

Experimental Modelers

While students are free to play with applications such as the ones listed above, the Fantastic Architecture Studio has focused on the following three experimental modelers: L-SYSTEM 4 (Copyright © 2000 - is an application developed by Timothy C. Perz), FORM (is an application developed by A. Rowbottom), and ANIM8TOR (is an application developed by R. Stephen Glanville). There are two reasons why these three particular applications are chosen. First, each one of these three modelers is able to generate a very particular form of geometry. For example, ANIM8TOR produces exquisite spherical compositions, while FORM draws evolutionary form and LSYSTEM generates fractal geometries. There is no duplication. The second reason why these three programs were chosen is that they are very easy to use.

Putting It All Together

The design process the Fantastic Architecture studio follows is not linear. Students are asked to experiment with traditional polygonal modelers at the same time they look for additional sources of inspiration from science fiction sources. If they see that FORM can assist them in resolving a particular geometry, they are immediately encouraged to jump on that application and obtain an element they cannot generate using traditional polygonal modelers. In other words, they are constantly jumping around in search for the most direct and easy way to perform a particular task.

It comes a point when all the tasks, including the science fiction search and the multiple iterations between the modelers and the base application begin to coalesce. At this point students begin to form the final spaces with the assist of more robust 3D modelers such as Rhinoceros, AMAPI and 3DStudio. At this point forms that only a few years ago were labeled as ‘impossible-to-draw’ or ‘not build able’ are now easily generated and their complex geometry is easily understood. Additional rendering exploration is also done with Genesis II and Piranesi in order to generate more individualized presentations.

At the end students are asked to begin synthesizing their schemes. While they have been asked since day one to think holistically in terms of the design process, that is, to not only spend energies in form generation, but to think about environmental considerations, tectonic qualities and other critical aspects, their production has not involved the final tuning of their schemes. At one point, the final rush for the finish line accelerates the quest for the ultimate design bravado, that final lighting effect, that cool environmental situation, that fantastic animation. Because with the new generation of modelers students can spend more time in creative endeavors rather than in some obscure software task, the process not only ends in extremely attractive and seductive presentations, but with an inner feeling that it is very fun to be able to generate an architecture that even though by its own nature is fantastic, it nevertheless opens the door to a more uniquely creative tomorrow.

Figure 1 – Image of an architectural interior space generated by S. B., second year architecture student. The image was generated using multiple iterations between experimental modelers. It was rendered in PIRANESI.

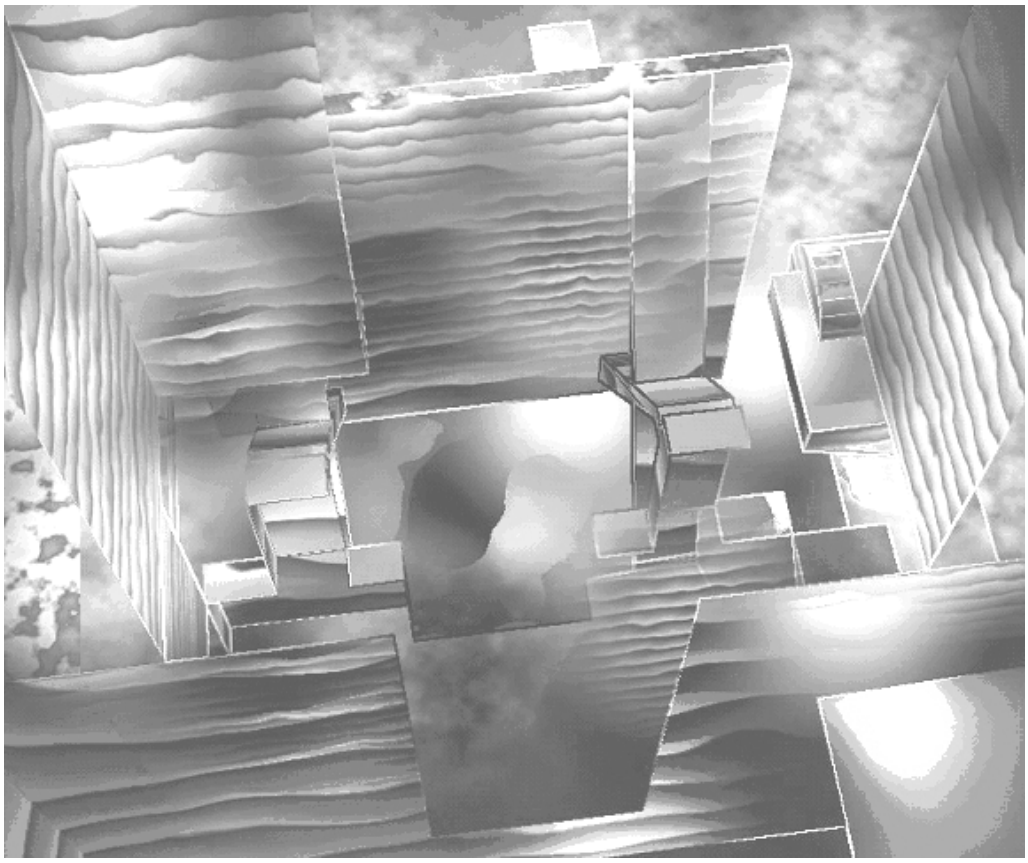

Figure 2 - Project by T.K. experimenting with lighting software modeling and rendering applications.