



Trends in Architectural 3D Visualization

by Faraday 3D team



ESTONIA OFFICE

FARADAY 3D

Riia 185a 4th Floor
Tartu 51014

DIMITRI BOBKOV

+372 5050 486
info@faradaylabs.eu
<http://faradaylabs.eu>

FARADAY 3D

Table of Contents

2	Introduction
3	The Early Years <i>1993 - 2000</i>
4	Texture & Shadow <i>2002 - 2006</i>
5	Photorealism <i>2006 - 2010</i>
6	3D Impressionism <i>2010 - 2015</i>
8	The Future <i>2015 -</i>
12	Who We Are <i>Learn about Faraday 3D</i>



Past 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 Future

3D visualizations are a prominent part of our daily experience. There are almost no areas where they are not used: Industry, construction, medicine, culture, entertainment, web, cosmetics, and even advertising—this is just a short list of areas widely employing three-dimensional graphics.

The advent of new graphic capabilities stemmed from the needs of the modern society, its desire to give clear forms to complex subjects, to simplify perception of intricate systems and assemblies, to show ideas brightly and engagingly.

Luckily, computer-aided 3D simulation, animation, and visualization do not eliminate the person as the true creator. On the contrary, they augment the creative process by minimizing physical efforts and allowing the master to fully focus on the creative side.

To understand what changes we expect of architectural visualization in the future, let's first take a step back and ask ourselves, what is architectural visualization? You could say it's simplified illustration of a technical object, designed to facilitate the viewer's perception of its prospective real-life implementation, and it would be truth. But not the whole truth.



Author: Faraday 3D | www.FaradayLabs.eu

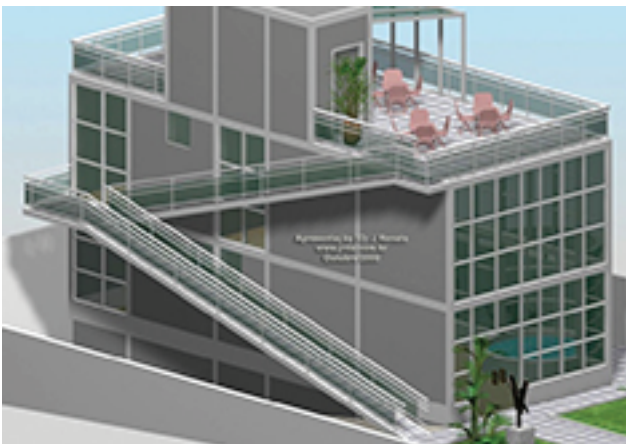


Past 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 Future

If we look at the first 3D works made in 1993–2000 in the then-revolutionary Autodesk 3ds Max package, we can't call them anything but computer-aided technical drawings. Their main purpose was to visualize three-dimensional properties of a future building or interior. Given the computing power available in those days, using realistic textures was not an option.



Autodesk Demo Reel (1992)



Author of all images: J. Renato A. Durate | www.jrrio.com



Past 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 Future

Unfortunately, despite more than a two-decades interval and a thousand times more powerful computer technology, the Internet is still full of architectural visualizations with quality not far exceeding those first renderings are. We will not give examples of such low-quality work here: You can easily find them on any freelance website.

With the growth of affordable computing power (2002–2006), 3D visualizations became more and more prominent.

Today's technology allows not only rendering basic objects shapes, but scrupulously working on the nuances as well. We can now handle increasingly spacious scenes, with a drastically higher number of small details. This allows painting in detail not only the building itself, but also the landscape around.

For example, there are more and more different shades of green present on exterior visualizations: grass, flowers, shrubs, trees, and so on. Thus, designers pay special attention to materials and textures. We can reasonably expect that in the near future 3D renderings will achieve truly photographic quality.



Various Authors from www.cgarchitect.com



Past 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 Future



If you look at the evolution of 3D rendering in 2006–2010, you can already see photorealism knocking on the doors. With the advent of render farms, designers no longer need to care about computing powers of their own machines and focus their efforts on the tiniest details of the work at hand.

For example, interior 3D designers can now work on elaborating the shadows and staging the light, adding natural reflections from objects made of different materials. In rendering furniture, for example, they strive to convey the correct pattern of folds and wrinkles (classic interiors have lots of carved ornaments and fretwork).



As for exterior design, we now see not only a correct play of lights and shadows, but also detailed dust and dirt. This is most noticeable on concrete surfaces: rendered buildings are no longer sterile but authentically stained. In other words, today's designers seek to convey the real picture of the world.



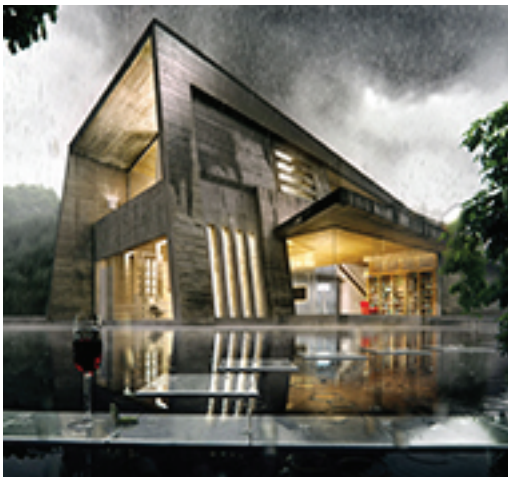
Various Authors from www.cgarchitect.com





Past 1993 1995 1997 1999 2001 2003 2005 2007 2009 2011 2013 2015 Future

The next period of 3D art development is 2010–2015. It is not by accident that I used the word “art” here. I would even go as far as calling it “3D impressionism,” referring to an art movement whose members developed methods and techniques that would allow capturing the real world in its mobility and variability mostly naturally and vividly, conveying fleeting impressions in an emotional and straightforward form.



Author: Dimitar Tilev | www.proviz.bg



Author: MIR Architectural Design Studio

That’s why if you look at the work of today’s 3D artists, you can see the architecture per se becoming a secondary feature. Now it becomes increasingly important to show not the building itself, but its soul, as well as the soul of its environment.

For example, if this is a private house in the snowy Norwegian mountains, the artist will strive to convey the darkness, dampness, and coldness of the exterior, contrasting with the joy and love reigning inside the house, where a family gathered for a supper at a large table, guarded by the light and heat of their home. If it’s an office building, the author will try to show the life boiling inside it, chiming in with the hustle and bustle of the city outside.



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It is art, and how could it be otherwise? If the goal is clearly to show the artist's experience, does the means of achieving the result really matter? Is the technique of painting more important than the result? Throughout history, art has always reflected the culture of the period in which it was created. It came in many forms. It was constantly evolving, incorporating all that was necessary for the artists to display the reality, as they saw it.



Author: www.3DArcShop.com



Author: Pablo Lassalle

Today's society has the most advanced technology, at least much more advanced than was available to previous generations. But what if Leonardo da Vinci lived in our time, watching and enjoying the technological progress? Can you imagine what he could have created? The genius inventor would have used modern technology and would have made Pixar pretty nervous. Darn, he would probably have owned Pixar!

I can imagine the following dialog:

- "But it's not painted, is it?" - "It does not have real paint, but it is a painting - just one made on the computer."
- "But how can we call this art, if there is no paint?" - "The paint is digital, the colors and brushes are parts of the software, and the screen is the canvas. The artist paints on the screen as though it is the canvas."
- "But how will you get it on real canvas?" - "You don't have to. The magic is already there. 'The evil, dark magic'."



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Now we come to the most interesting part: What can we expect in the future? As long as we consider 3D graphics to be art, we can expect its future to follow the same phases. So let's look back at the history of fine art in general, and landscape art in particular.

The history of landscape can be tentatively divided into four periods:

- The first period, the emergence of "landscape painting," traces back to the ancient Egypt, Babylon, and Pompeii. One could call this period the time of the artistic conquest of nature. If we draw a parallel with 3D art, the emergence of 3D graphics took place in the 1990s



Egyptian Book of the Dead

- The second period involved "decoration" or "stylization" of nature, as represented by, for example, Byzantine art, medieval art, the Italian Trecento - and, of course, the Renaissance, which marked a sharp turning point in the art of painting in the 14th and 15th centuries. Around the 1420s, fine art all of a sudden became much more elaborated and sophisticated. A vivid example of the time is "Arnolfini Portrait" by Jan Van Eyck, the "Master of Bruges," a Flemish painter of the early Renaissance.



Author: Arnolfini Portrait, Jan Van Eyck



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Why did images suddenly become so realistic and detailed, with such a striking presentation of light and volume? As a “home task” I propose the readers to figure it out by themselves — it shouldn’t be that difficult with the current internet capabilities. In 3D, this period is similar to the emergence of 3D realism in 2002–2006.

- The third period in the history of landscape art has its origins in Dutch paintings of the 17th century and their utmost expressivity, the earmark of impressionism. The pioneering achievement of the Dutch secular realism was to depict the real world and not its exalted presentations.

The paintings brilliantly conveyed seemingly unexceptional rural landscapes in usual weather and lighting conditions. But through masterful work with tones and colors, the painters managed to convey all the nuances of the aerial perspective: a humid atmosphere, a scattered silvery light, the unity of materials in nature, and so on.



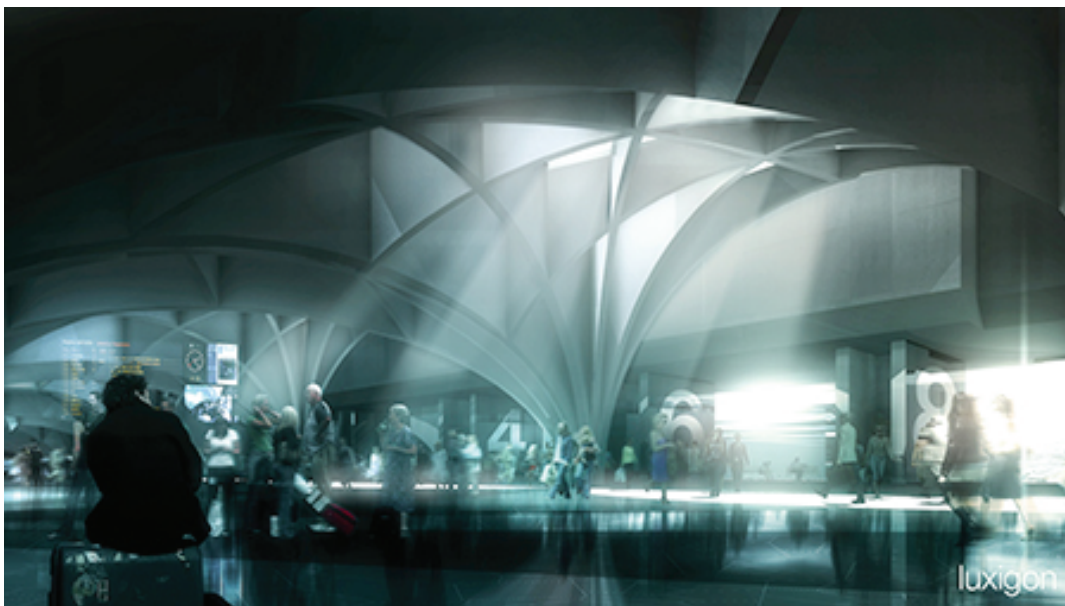
Author: Path in the forest, Meindert Hobbema, 1670

In the 3D graphics analogy, such a transition from realism to impressionism started in 2010.



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- Finally, the fourth period - contemporary art as we know it: realism, symbolism, modernism, avant-garde, surrealism, futurism, and so on. If you look at the works of the world's leading 3D graphic design studios such as mir.no, kilograph.net, luxigon.com, you can see that modern 3D art has already begun to move on from realism and impressionism to a mixture of surrealism and futurism.



Author: www.luxigon.com

Surrealism is one of the most fascinating movements in art. A study of the history of human development reveals a remarkable fact: cavemen made their first drawings not from nature, but from their own imagination. In order to do so, the "ancient artists" fell into a trance, released their unconscious, and created their imperishable works of art. Scientists found compelling evidence of this fact only in the beginning of the 21st century, after years of arduous research.

So, in a way, it is from surrealism that the humans started their journey through creativity, and surrealism has been around during the entire history of mankind. Surrealism was, is, and will be one of the key approaches to art. It is unlikely that the man will lose interest in the supernatural, the beyond-natural. I expect the same trends in 3D graphics.



Past

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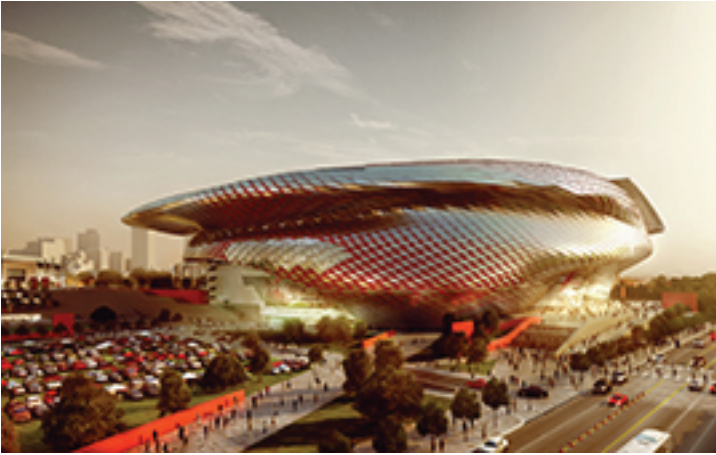
2009

2011

2013

2015

Future



Author: www.kilograph.net



Author: www.mir.no

If we stretch our imagination even further, what will the 3D of the future be like? Science-fiction novels show it in the form of holograms controlled by the thoughts of the viewer. Usually they are in color and sound. Sci-fi writers are convinced that their dancing holograms will replace traditional canvas and paints. But if conventional photography was not able to supersede paintings, why would holography be?

Another futuristic form of art comes with Oculus Rift head-mounted displays and other recent developments that provide an opportunity to immerse oneself into the virtual world.

For instance, software titled Tilt Brush by Skillman & Hackett allows all art enthusiasts to paint in three dimensions, using not only usual materials, but also such matter as smoke, stars, and light.

The application is still in development, and previewers note that creating a three-dimensional image requires a lot of effort. Among other things, the complete transition to 3D art requires the design of auxiliary due to the lack of special stylus or gloves.

But over time, programs such as Tilt Brush will surely become more well-designed and usable, opening endless aesthetic possibilities for artists.

Who We Are

Faraday 3D has been around for almost six years. What defines our ongoing success is the commitment to providing exceptional quality, customer service, and support to our clients. Faraday team consists of top-notch graphic designers, programmers, web developers, and marketing customer success professionals.

We dedicate ourselves to each project and every client, guaranteeing fresh design approach and tight cooperation through our project leader. Our creative edge is what sets Faraday apart from many other agencies. We understand that you are focused on your own business, and that it is our job to give you additional competitive leverage by providing creative design solutions.

The feedback we get from our clients has been overwhelmingly positive, which we believe is a result of many factors, such as:

- Being able to create highly realistic renderings for a very competitive price
- Meticulously interviewing the client before the project to understand their ultimate goals and obtain whatever additional material might be necessary for the task
- Working tightly with the client during the project to ensure that the final results match the expectations
- Treating every customer professionally and respectfully and not being the “smart-ass designer who knows better”.



DIMITRI BOBKOV
Project Manager, Founder