Advanced Rendering in Fusion 360: Photorealistic, visual storytelling

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Learning Objectives

1. Understand how to create clear and engaging renderings based in photography principles.
2. Learn best practices for setting up materials, lighting, camera and environments.
3. Take full advantage of Fusion 360's intuitive rendering environment.
4. Understand how successful renderings connect with audiences by telling engaging visual stories.

Description

Fusion 360 is a powerful end-to-end CAD solution and one of its most powerful capabilities is the Rendering environment. This class covers how to achieve impressive, photo-realistic renderings. Topics will include everything from basic layout and composition to best practices for using materials, lighting and environment effects. While this class will focus on examples of product design within Fusion 360's rendering environment, the ideas described can be applied to any rendering situation and any rendering program. Compelling renderings are a key tool for successful storytelling of designs and concepts to a wide audience. This class will be a sure step for achieving rendering awesomeness.

About the Speaker

Alex Lobos is an industrial designer and educator focused in sustainable design, emotional attachment and CAD applications. He is Graduate Director and Professor and Industrial Design at Rochester Institute of Technology, New York. At Autodesk, Alex is a Fellow in-residence in Strategic Foresight, Expert Elite for Fusion 360, member of Autodesk University's Advisory Council, AU Featured Speaker and recipient of Fusion 360's Education Award. For more information on Alex's work go to: https://www.rit.edu/artdesign/directory/aflfaa-alex-lobos

1 - Rendering as storytelling

Rendering is key tool in CAD. It provides the opportunity to visualize and communicate design intent to different audiences and stakeholders. A good rendering provides a window into how designers and engineers envision their designs to exist in the real world. The value of rendering cannot be understated, and it is helpful to understand how to use it effectively. Thinking of renderings as a communication tool is accurate but also limited. Rendering is a visualization tool that can inspire, persuade and attract viewers, giving them an insight to the type of experiences and emotions that a design could entice in its users.

At its most fundamental level, renderings are stories. Each rendered image can tell many details about the functionality, appearance, scale, use, and even potential value of a design. People have a natural attraction to visual cues and can absorb in seconds a large amount of information in terms of shapes, colors, textures, position, scale, etc. More importantly, viewers make conscious and unconscious connections between these elements in fractions of a second, which can generate very strong and emotional reactions. J Mays, prominent industrial designer for Ford, VW, Audi and Whirlpool, talks about how consumers decide if they like a product in less than three seconds, just from taking a quick glance at it.[1] This quick reaction applies to products ranging from pens to automobiles. This is why a rendering is an important opportunity for communicating the visual story of a design.

2 - Elements of a good story

An effective rendering needs preparation, technical skills, and most important, a clear message. When all of these elements come together, they can elevate the digitally image of an object into an engaging visual that communicates, inspires and moves.

There are four general categories that define how a rendering should come together:

- **Intent** – Before any rendering work begins from a technical standpoint, it is key to stop and reflect on what story needs to be told about the product. It is helpful to think of what makes the product unique and what elements need to be highlighted.
- **Model's preparation** – In order to have a good rendering, it is important to have a good model. A design that is well thought-out, developed and modeled, will contain enough details and components that are easy to display, highlight and explain visually. Just like a photographer can struggle with photographing a model with limited expression and personality, a designer will not be able to create strong renderings with a product that has been developed at a limited capacity.
- **Composition** – A good way of thinking of a rendering is as a digitally-generated photography. All the principles that apply to how viewers read and react to a photography apply to a rendering. This includes principles of composition, framing, lighting, etc.
- **Rendering's setup** – There needs to be a balance between knowing what type of image is effective as a visual communication tool, and how the tools in a rendering engine environment use used in order to achieve it.
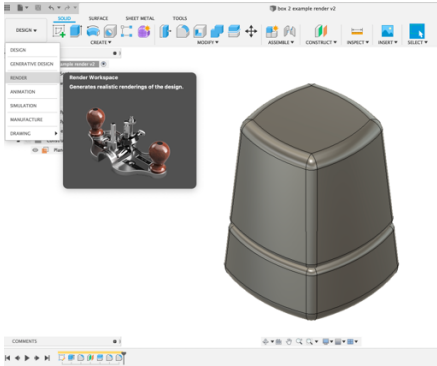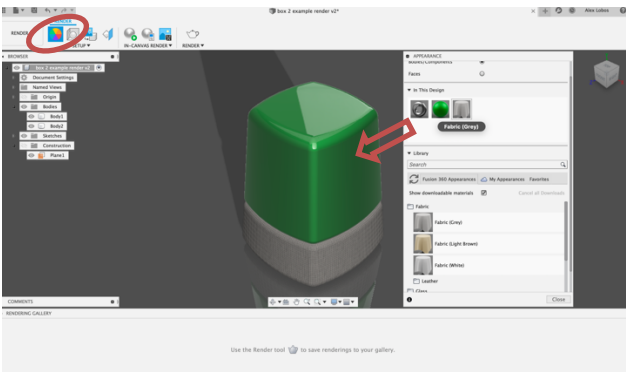
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[1] Jay Mays (2019). "The 5 things that matter most." International Design Conference. Chicago, Illinois. August 23.
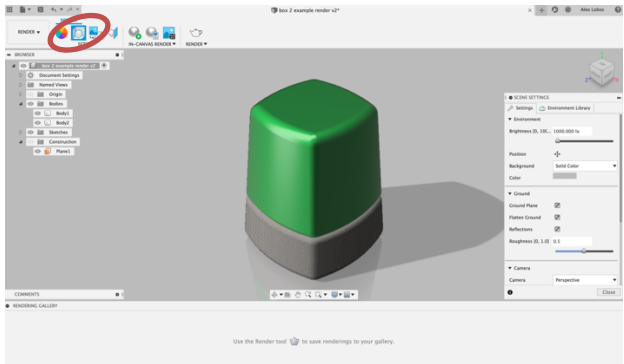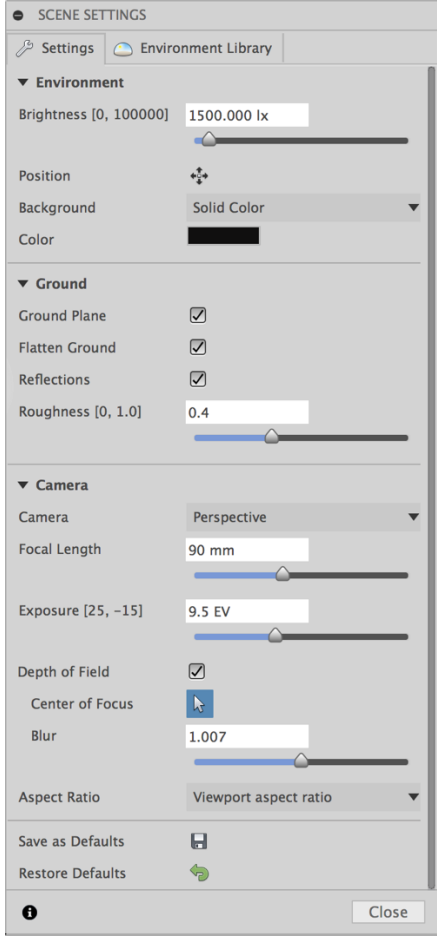
About this class and its application
This presentation focuses on **technical setup, intent and composition** of renderings. The technical setup is based on the use of Autodesk Fusion 360. Fusion's rendering environment is effective and easy to use, with a functionality similar to other popular rendering tools such as Keyshot. Model's preparation is not directly covered in this class, as it relates more to modeling workflows and fabrication considerations. Modeling techniques in Fusion 360 previously covered the Speaker can be found here, here, here, here and here. Many of the examples used in this class come from those workflows and were designed and rendered by the Speaker, unless noted. The principles for intent and composition are relevant to many visual compositions, such as renderings, paintings, illustrations and photographs.

3 - Fusion 360 rendering workflow
Below is a description of the settings included in Fusion 360's render environment. These descriptions will be useful to navigate and understand how to create renderings. Constant experimentations and adjustments of these settings will lead to superior results and more engaging, photo-realistic results.

Rendering Settings		
Render Environment	In upper left side of the Toolbar, click on the title to expand and select Render	
Appearance	Browse the material library and identify materials for your model. Select to apply materials to bodies/components or faces. Drag a material's icon to a component to assign it.	

Scene Settings	Settings tab Use the Brightness slider to adjust light's intensity. Click the Position icon to adjust lighting's angle and scale. Click the Color bar to adjust the background color. Go to the Ground section to set how the model interacts with the environment. Use Camera settings to adjust focal length and exposure. Use Depth of Field to set a point of focus in the scene, away from which blur will increase incrementally. Environment Library tab Go here to choose from environments that will apply different lighting schemes to the scene, ranging from warm to cool, and from sharp to diffuse lights.	

Decals	Use this setting to apply decals to different faces of your model. You will be able to adjust their position and scale. For decals with no colored frame, make sure that you use PNG files with transparent background.	
Texture map	This setting is important when using appearances that have a pattern/grain. Some projection types might distort the texture or show breaks along the surface that are distracting. Scroll through "Projection Types" to use different styles for applying texture into the body.	
In-Canvas Render	Selecting this option will render the scene in high resolution in real-time. Rendering will be processed locally in the computer, and not in the cloud, which might affect performance and battery life. A good workflow is to use the basic (no in-canvas) rendering to setup general elements of the rendering, and turn on in-canvas only to check how the final rendering will look like.	

	A slider at the bottom of the screen allows the canvas to render in various resolutions.	
In-Canvas settings	Use this tab to set how the in-canvas rendering will operate.	
Render (save)	Click the Render panel to create final renderings. You can set dimensions, in-cloud or local rendering, and image quality.	
Render Gallery	As renderings are completed, they will be displayed in the gallery at the bottom of the screen. Double-click any thumbnail to open the rendering. From there you can save, share, re-render or delete.	
Named views	It is common to create rendering from views that are not the default angles in Fusion's view cube. Whenever a custom view needs to be saved, go to Browser > Named Views. Right-click and select New View to save it.	

4 - Intent

The term "Story is king" is widely known in the movie industry, and it also applies to photography and rendering. The most important element of a rendering is the message that it communicates. A rendering without a clear message becomes a simple display of a CAD model in a relatively realistic scenario, as illustrated in the flashlight in Figure 1.[2]

Figure 1: Flashlight. Descriptive rendering with no particular emotion or message.

The message of the rendering depends on the application, and it doesn't have to be a big message with hopes of changing the world. Some renderings can be highly technical, explaining as clearly as possible details of a design. In this case the story can be as simple as demonstrating how a set of mechanical parts go together, or how an object will fit in a given space, such as in the turntable in Figure 2.[3]

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[2] https://gallery.autodesk.com/fusion360/projects/77208/flashlight-16

[3] https://gallery.autodesk.com/fusion360/projects/142557/braun-sk-4

Figure 2: Braun SK-4 turntable (designed by Dieter Rams and Hans Gugelot). Rendering is straightforward and shows the model in a descriptive way, while looking for an interesting camera angle and lighting setup.

Others can be aspirational, making audiences imagine how they would use a design in specific scenarios, or to insinuate how an artifact can be empowering and enjoyable to use. Others can be emotional, moving the product to an abstract level where details are not as important as the design's overall personality as in seen in the closeup used in Figure 3.

Figure 3: Braun SK-4 (designed by Rams and Gugelot), now presented from a more dramatic angle that plays with focal points, diagonal axis and depth of field. The viewer has an easier way going between the foreground and background.

The type of story that wants to be told will eventually define elements such as the position of the camera, the materials chosen for the design, the color and depth of the background, the

intensity and angle of the light, and the position of the product within the frame, to name a few elements.

Along with defining the story of the product that wants to be told, it is important to think of who the audience is. A rendering that works well at a meeting with a manufacturing team might not work well in a promotional post in social media. Technical renderings need to be more descriptive and focus on specific details of the design, while aspirational ones can be more dramatic and use effects that provide strong emotions and dynamism.

5 - Visual composition

Good visual composition is the result of combining multiple elements in a thoughtful way that aligns with the message that wants to be communicated. Below are a series of concepts that are useful for creating images that are compelling and visually engaging.[4]
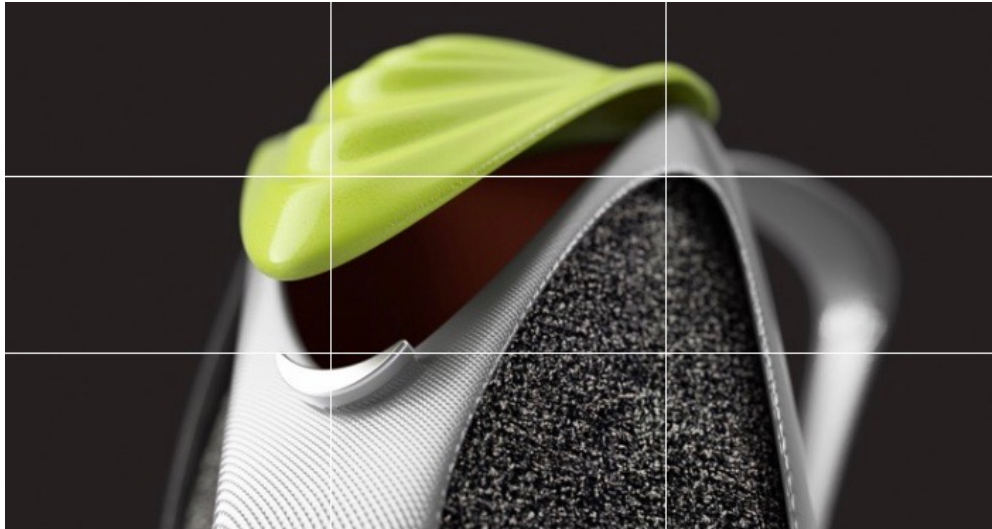
5.1 - Rule of thirds

One of the most popular and simple methods for arranging an image is to use a grid guide of three columns by three rows, which creates two horizontal and two vertical lines. The intersections of these lines are the ideal spots to place the main characters of a rendering. Elements in these locations look naturally balanced within the canvas. Our eyes intuitively move to these four areas when looking at a picture, as seen in the backpack design in Figures 4 and 5.[5]

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[4] Natalie Fobes (2011). The elements of effective photographs. LinkedIn Learning. Accessed from: https://www.linkedin.com/learning/the-elements-of-effective-photographs/welcome

[5] https://www.autodesk.com/autodesk-university/class/Its-All-Details-T-Splines-Modeling-and-Photorealistic-Rendering-Fusion-360-2016

Figures 4 and 5: Backpack concept. The model is placed so that the key elements of the model align with the intersection points of the grid. This helps to balance the image and to draw the eye to clear focal points.

5.2 - Diagonal Axis

Another way of framing the canvas is by imagining diagonal axis that runs from one corner of the scene to the opposite one (upper left to lower right and upper right to lower left). Aligning elements along these axes creates a strong flow, making great use of the space in the canvas, as noticed in the drum set in Figure 6.[6] Diagonal axes are also useful to move between foreground and background, developing a sense of hierarchy and narrative.

Figure 6: Drum set, with a strong diagonal axis coming from the left side downwards.
A secondary axis also runs in the opposite direction.

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[6] https://gallery.autodesk.com/fusion360/projects/41458/drum-set-1

5.3 - Symmetry

Arranging elements in a symmetrical way can be an effective tool for creating dramatism, creating a sense of stability or bringing the eye to a central focal point, as illustrated in the stool combining Voronoi patterns in Figure 7.[7]
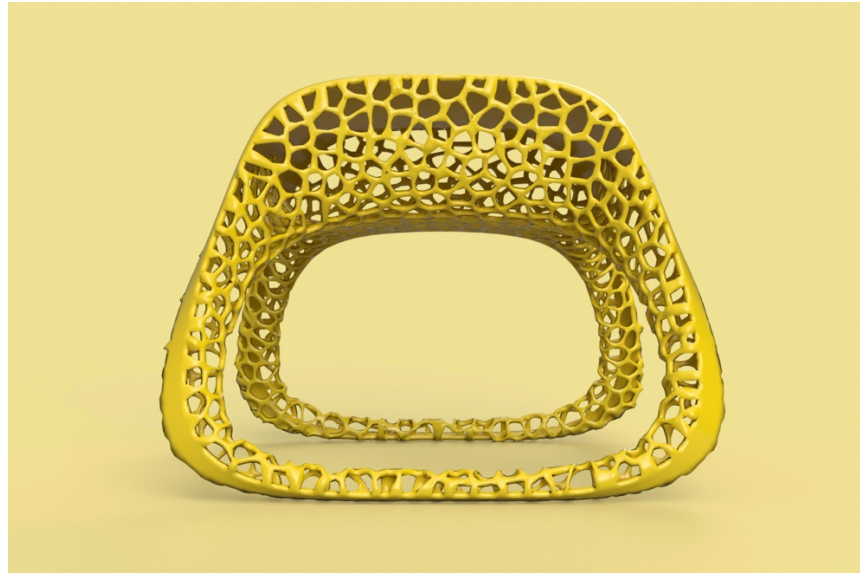

Figure 7: Stool. A symmetrical composition creates an attractive effect and emphasizes the product's geometry.

Symmetry should be used in a precise and deliberate way. Images that look "almost" symmetrical do not create a good effect in viewers. They can either create visual tension or give out the impression that the image was put together without much attention. The takeaway of this technique is to show intent: either make a scene clearly symmetrical or clearly asymmetrical. Anything in between feels confusing and careless.

5.4 - Focal point

Every good story has main characters. In most cases there is only one main character, and sometimes you can have two or three. Anything more than that can start getting confusing. If multiple characters in a story have the same level of importance, the story becomes confusing. The same principle applies to a rendering: there has to be a focal point, a main reason of why a viewer looks at the image, as evident in Figure 8.

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[7] https://www.autodesk.com/autodesk-university/class/Next-level-design-workflows-Fusion-360-mixing-T-Splines-meshes-and-Voronoi-based-patterns

Figure 8: Bass drum. The focal point is in the drumhead. This is achieved by the way the drum is placed in the scene, the lighting highlighting the drumhead and a reflection that brings the attention to that area.

Sometimes a rendering might have a couple of focal points, but if too many elements need to receive attention, they will actually neutralize each other and none of them will stand out, particularly in a story that lives only in a single image. Focal points are achieved by using a variety of attributes such as: lighting (the brightest part of the image), position (occupying one of the four points of rules of thirds, position (foreground instead of background), and depth of field (being the sharpest area of the image). Determining how many and which elements will be applied to a rendering depend on each particular case and its goal.

5.5 - Negative space

This concept is tightly connected to focal point. Images that are too busy become hard to read and their key elements get lost. This applies not only to parts of a given design but also to other elements that are part of the environment of the scene. While a rich background can provide context and ambience around a design, it should complement the main character and not compete against it. Leaving plenty of negative space helps to maintain the attention on the main elements of the design, as seen in Figure 9. With few components in scene, it can be easier to tell a clear story.

Figure 9: Chair using generative design. The negative space and the gradient lighting around the chair bring the eye into the piece particularly the generative designed frame.

5.6 - Depth of field

Our eyes always see things with a focal angle, which means that as elements move away from the focal point, they become blurry. The bass guitar in Figure 10 demonstrates an effective use of depth of field.[8]

Figure 10: Bass guitar. Depth of field is an effective way of bringing the eye into a focal point, letting the rest of the product be more abstract.

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[8] https://gallery.autodesk.com/fusion360/projects/130633/bass-guitar-wood

Renderings that are sharp all around never look as realistic as those that have depth of field. The level of depth depends on the particular rendering, as it can range from subtle to dramatic. But in general, any good rendering should always have a degree of depth of field.
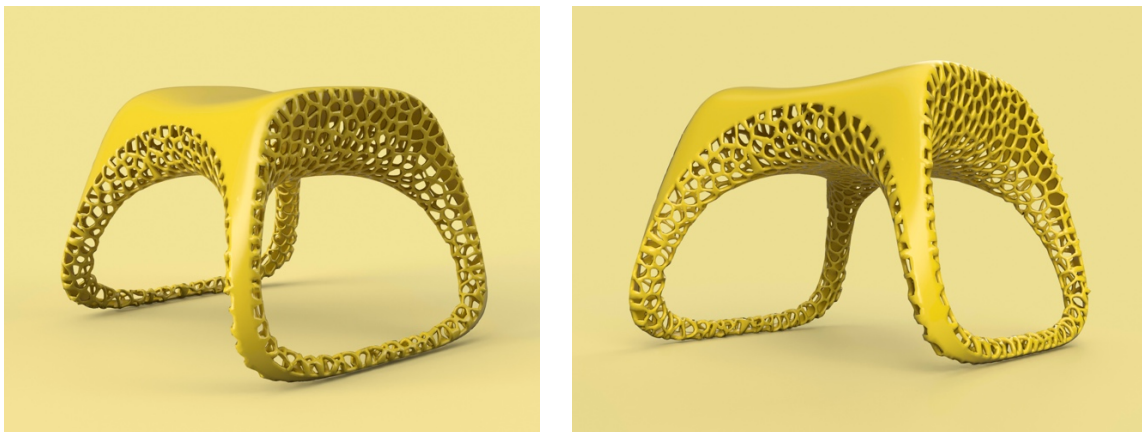
5.7 - Camera

The camera is an essential element in the rendering. It becomes the precise location from where viewers are looking into the scene. When setting up the camera, it is important to understand how its location in all three dimensions affects the perception of the rendering, both from a spatial and emotional sense:

5.7.1 – Distance

It defines how far or close we are to an image. Being far way gives us more context about the main characters, but it also limits the level of detail that we can appreciate of the bodies rendered. The closer that we are to objects, the more that we appreciate details, but we can lose context of the whole character. Additionally, when getting too close to the body, it might be necessary to adjust the focal length of the camera, in order to avoid distortion of the image.

5.7.2 – Height

This is a simple and effective way to communicate the scale of a product. The same object might look large if the camera is below it or small if the camera is above it, as in the stool seen from two different angles in Figures 11 and 12. This balance is important in particular when we show products that are not easily recognizable and that don't have a human scale reference around them.

Figures 11 and 12. Stool concept using Voronoi patterns - The height of the camera changes the perceived scale of the object, going from smaller to larger.

6 - Lighting

Lighting is a powerful tool for communicating design intent. At its most basic level, it provides brightness that allows to see objects in the scene. If used with more intent, it combines highlights and shadows that communicate details of the bodies' geometry. Depending on its intensity, type, color and location, it will also drive the personality and emotional message of the scene.

There is no right or wrong way of setting up a scene; it all depends on the story that is being told. In general, a harder lighting scene is practical and descriptive, allowing an easy appreciation of an object's details. A softer light is more emotional and presents the product as a "whole" element. Below are a series of principles to take into account when setting up lighting.

6.1 - Lighting environments

Many rendering packages such as Fusion 360, include pre-set lighting environments, which apply a particular lighting scheme to the scene and also use a solid background where the object sits and the lighting bounces. This is the most common approach for lighting in today's practice. While this setup might look basic, it can actually produce excellent results. Traditionally, lighting was done manually, setting up individual lights around and object and tweaking each of their components in order to achieve a good result. In either method, the key to success is playing around with the lighting environment enough to understand how it impacts the bodies in the scene.

6.1.1 - Preset light environments

Fusion 360 has a wide array of lighting setups, ranging from "hard" lights that are very focused and cast strong shadows, to "soft" environments with diffused lights and shadows. These setups work very well in most situations and can produce realistic results. They are based on a general light that comes from a single direction, which can be set by the user. There is no option for moving the height of the light source, so controlling the angle of the light and the projection of shadows is limited. However, these presets avoid the use of manual lighting setups, which can be time intensive and require more technical knowledge.

6.1.2 - Manual light setup

A manual setup involves turning off the brightness of the preset environment and placing objects with emissive material/appearance that are used as lamps. The most common light setups involve two or three lights, just like in studio photography.[9] In the two-light setup, there is a primary light coming from one side of the object, and a secondary light from the opposite side. This setup provides even lighting while also allowing for shadows to appear in and around the object. The main light should come slightly from an angle and not straight from the front of the scene. This angle makes the composition more interesting, adding shadows. It also makes the object look more dynamic and important because it casts a shadow that projects diagonally into the background. The three-light setup uses the same principle for the first two lights and adds a third light that provides a complementary effect, coming from an angle that is not covered by neither of the other lights. In addition to setting up lights, some people create a very large "bowl" with a neutral material and place the objects and lights inside the bowl. This technique provides a clean, gradual background that fades into the background and also helps to bounce lights around the object.

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[9] Joseph Linaschke (2016). Learning Product Photography. LinkedIn Learning. Accessed from: https://www.linkedin.com/learning/learning-product-photography/hot-lights

6.2 - Highlights

Projecting clear highlights onto bodies serve two objectives. The first one is to define the shape of the product. Highlights can be a great way of communicating the shape of certain surfaces or pointing out parting lines. The second objective is to add detail and life to the rendering. Highlights create shiny details that make the rendering more dynamic, as seen in the VW van in Figure 13.[10] Extreme highlights, however, should be avoided as they make the bodies look overexposed and flat.

Figure 13: VW van concept. The angle of the light creates interesting gradients in the van's surfaces. The highlights in the wheels, bumpers, side trims and windows provide extra information for understanding the geometry of the design.

6.3 - Shadows and Back light

Shadows bring balance to a rendering. If an object only has light, it looks flat. Shadows help to accentuate bright elements and to make sections of the rendering more interesting and even mysterious. Shadows are also good ways of helping to define the shape of certain details, particularly in light colors.

In some cases, a back light helps to define the contour of an object. This can be useful when using a very dark background with a dark object.[11] The Bluetooth speaker shown in Figure 14 uses a backlight behind it that adds detail to the bottom of the handle. Since Fusion's lighting environments are based on single lights, the easiest way to add extra lights is to model a sphere, apply to it an emissive material, and place it in the scene so that the camera doesn't show it directly.

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[10] https://gallery.autodesk.com/fusion360/projects/141034/vw-van-concept

[11] Konrad Eek (2013). Lighting for Product Photography. LinkedIn Learning. Accessed from: https://www.linkedin.com/learning/insights-on-product-photography/lighting-for-product-photography

Figure 14: Bluetooth speakers. An additional light behind the object helps to add lightings to the bottom part of the handle, helping to communicate its shape and separate it from the background.

6.4 - Ground and reflections

An object that is not grounded looks like it's floating in space, creating an awkward reaction in the viewer. Grounding objects helps to make them more stable and to have better presence, as seen in Figure 15. Leaving a couple of millimeters between the ground plane and the object as a good way to define the bottom contour of the object, and it also looks more natural, as most objects have feet underneath them to prevent them from sitting flat on a surface.

Reflections add visual texture to the scene and are an effective way to balance colors and details. Fusion allows for the reflection to range from blurred to highly smooth. In most cases a blurry reflection will be more appropriate as a shiny one can be confusing as the viewer might not know where the object ends and the reflection begins.

Figure 15: Table lamp. The ground reflections crate an interesting balance for the legs and help to understand better how the base expands and rests on the ground.

6.5 - Light color and Intensity

The color of the light has a huge impact on how the object looks. Playing with different colors helps to give the image different personalities. In general, cool lighting seems more natural and reminiscent of outdoor environments, while warm light seems to work better for indoor environments. Intensity defines the brightness of a scene. A brighter scene will be more descriptive and show the characters in full details, while a dimmer scene will provide mystery and depth. Dim scenes are also common when showing lamps or emissive materials.

7 - Key tips

Along with the technical principles described above, there are a few general rules that are helpful to making decisions when creating renderings:

7.1 - It's all about the story

This concept is so important that is worth repeating: Story is king. Before any rendering work begins, there needs to be a clear understanding of the story that wants to be told. The story will define all decisions around the rendering, from selecting materials to lighting and background, to camera angles and so forth (Figures 16 and 17). Without a clear story, renderings are created just for rendering's sake.

Figures 16 and 17: Drum set. Figure 16 shows a general shot of the drum set. While pleasing to look at, the image doesn't have a strong hierarchy or message, leaving the viewer unsure of what to focus on. Image 17 uses depth of field, lighting and texture to draw the viewer into details of the tom-tom, allowing them to appreciate the wood grain and details of the design.

7.2 - If the camera moves, the light moves

Lighting works best when it is aligned with the camera angle. If your camera moves, the light might change and hit the wrong part of the product, or even create shadows that are not flattering. When adjusting the camera angle, the direct point of contact with the model will most likely define the focal point from the viewer's perspective. This focal point should align with the most important element for that given rendering (Figures 18 and 19), and it should also coincide with other elements such as the center of depth of field, or a key axis of the grid (rule of thirds, diagonal axis, etc.).
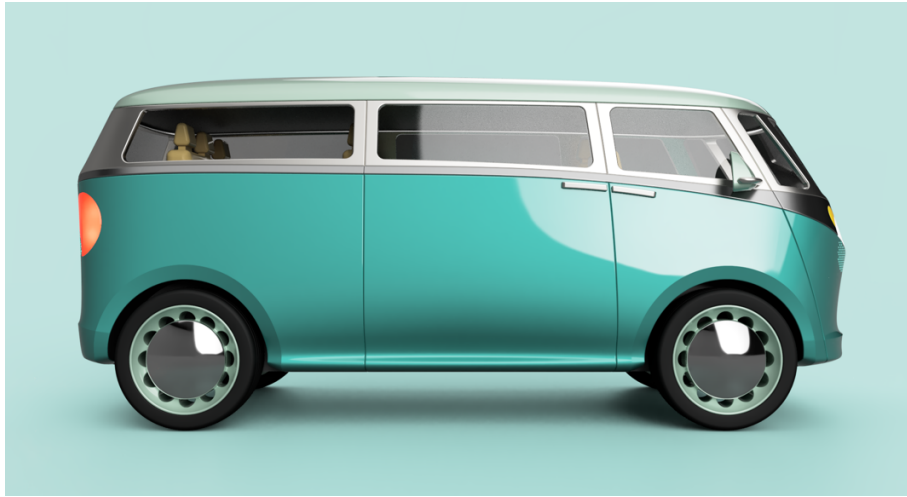
Figures 18 and 19: VW van. While both images show the same view, figure 18 uses a light angle that doesn't relate with the current camera and was probably setup for a previous rendering. Figure 19 moves the light to a stratetic angle, providing more brightness to the model but most important, bringing highlighhts and focal points to the front door, inviting the viewer to imagine entering the vehicle.

7.3 - Shadows are as important as highlights

When communicating design details, it is common to focus on highlights to make them stand out. In reality, good visual range comes from balancing highlights and shadows, since together they provide a wider range of possibilities (Figure 20).

Figure 20: Bass guitar. A balance of highlights and shadows helps in reading in detail the shape of the instrument. A strong light reflection in the bass' body works as a focal point, while shadows in the strings and knobs help to show their position, and soft shadows and backlights define the overall contour.

7.4 - Leave enough room for framing

Sometimes it's hard to frame an image perfectly while also taking care of technical details of a rendering. In cases like this, it is helpful to zoom out the camera just slightly, so that the rendering has enough negative space/background. This will make it easier to go back to it after it's done and crop it so that the composition has the desired effect (Figures 21 and 22).

Figures 21 and 22: Bluetooth speaker. The original rendering in figure 21 provided ample negative space so that different cropping options were possible down the road. Figure 22 shows a cropped version with an intensity filter, all of which make the image more dramatic and contrasting.

7.5 - No raw edges

Including clear parting lines in an object with multiple parts serve two key purposes: first, they add a higher level of definition to the design. Models with few or no parting lines are perceived just as general concepts, while ones with parting lines show that a design has been developed to consider material thickness, fit and assembly, etc. (Figure 23).[12] Second, and more connected to rendering, parting lines are great ways to communicate the shape of an object, from profiles, to contours and specific points where parts connect. Visually, parting lines add subtle and key highlights and shadows that make the composition look more interesting and realistic.

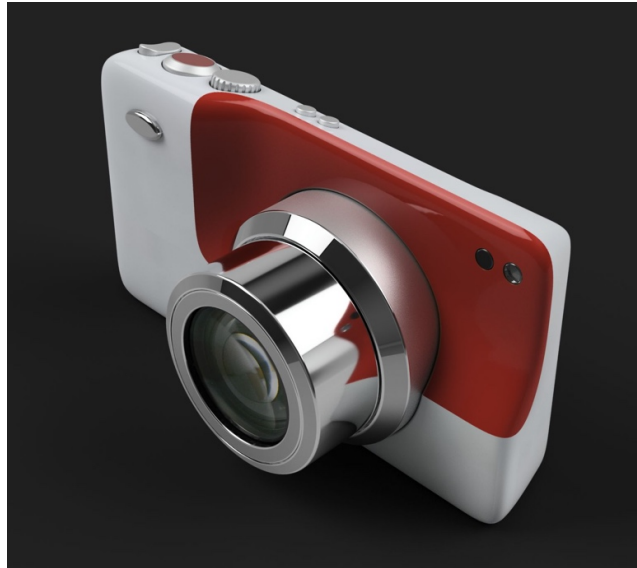[12] https://gallery.autodesk.com/fusion360/projects/40165/photo-camera

Figure 23: Digital camera. This rendering shows two levels of modeling. The camera body shows white and red faces with no particular division other than color. The lack of parting lines and design details limits how that section of the camera is perceived. The lens, in contrast, shows more details in terms of parting lines, chamfers and fillets. These details make the design look more intentional and with a higher level of definition.

7.6 - Check texture mapping

For materials that have a texture pattern (grain, weaving, etc.) it is key to check that their texture mapping is set correctly. Otherwise the material will look awkwardly applied into the object and in some cases, faces will have the material set in a wrong orientation. Texture mapping allows to find the best wrapping for the model, based on their orientation, scale, actual finish, etc. (Figures 24 and 25). For some materials, it will be necessary to readjust the mapping as the camera moves from one rendering to another.
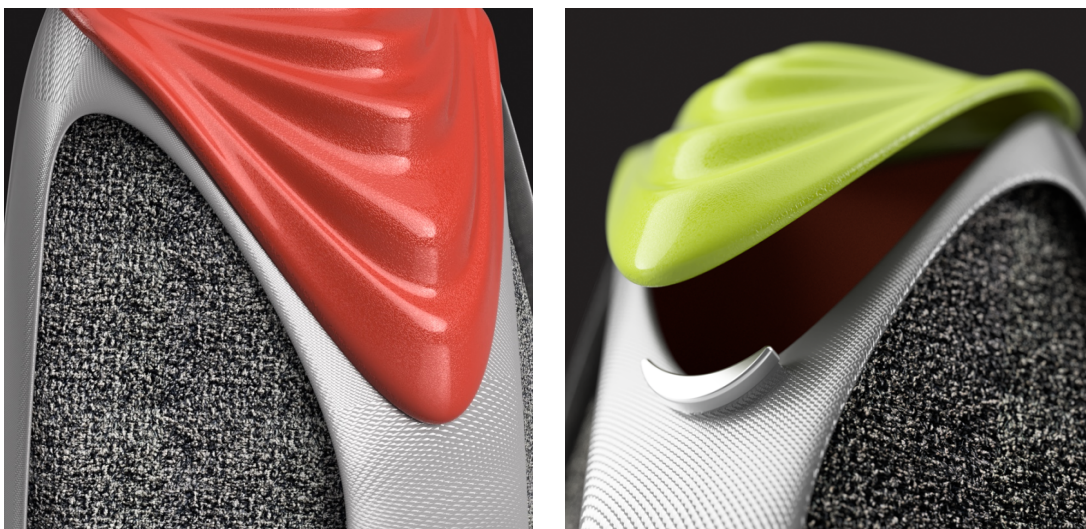
Figures 24 and 25: Backpack. These images show the difference in texture mapping. Figure 24 (left) shows noticeable breaks in the carbon fiber texture along the light gray frame of the backpack. Figure 25 (right) uses a different mapping for the texture, allowing it to run continuously along the body.

7.7 - Let it simmer

A good rendering hardly ever happens during the first session. Paying attention to details and understanding which are the best sides of a model and how they can be highlighted is a process that takes time. Refinement and iteration might be some of the most important elements for good renderings. Taking a break and coming back to a rendering with a fresh set of eyes helps immensely in identifying details that were missed in the previous session (Figures 26, 27 and 28). Additionally, our eyes get used to what we see and after a long session of renderings, we might not notice details that affect how realistic a rendering displays a scene.

Figure 26: Braun SK-4 (designed by Rams and Gugelot). First rendering generated.

Figure 27: Braun SK-4 (designed by Rams and Gugelot). Rendering circa No. 30, with additional details and better understanding of the design's key features.

Figure 28: Braun SK-4 (designed by Rams and Gugelot). Rendering circa No. 47, which is able to bring the design to a high degree of detail and is able to connect with the viewer in a strong way, using clear composition, depth of field, and use of materials and lighting.

8 - Conclusions

The first step for a good rendering is to think about the story. Will the rendering be used for a discussion with the engineering team about the feasibility of the design or to be used to promote the product in the marketplace? In these two scenarios, it would be hard to create a rendering that is both clear about manufacturing details of a design, while also being attractive and enticing to a potential user. The story that the rendering will tell is a key element for deciding what elements will go into the rendering, from materials, to lighting and environment, to camera angles and effects. In order to have a rendering tell a good story, it is necessary to combine technical knowledge within a rendering tool along with basic knowledge of visual composition, photography and lighting. Effective renderings begin with a good, clean and detailed CAD model, that is presented with the appropriate appearance, environment, lighting and framing. Renderings need to use elements such as balance, visual hierarchy of elements and good lighting setups in order to highlight their design intent.

Fusion 360's rendering environment is an easy to use and powerful tool, which can be adopted without a significant learning curve. Many of its settings create good results quite easily, and with a bit of knowledge and experimentation, can be brought to a very high level of visual storytelling. quite effective, and it doesn't take long to get images that are effective and show a model in a clear fashion.

A good visual story comes from combining technical and emotional elements in the most appropriate and engaging way. There is no predetermined formula for achieving the right balance, so experimentation and iteration are excellent ways of achieving a strong rendering, and also of comparing how different elements affect the way that a rendering communicates its intent.