Adobe Substance 3D Collection

# Access new levels of creative freedom and control with 3D-powered design.

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# Welcome to the 3D design revolution.

A product “shoot” without cameras. A dozen variations on a product design with just a few clicks of the button. A full set of packaging designs with no physical mockups. These are just a few of the possibilities 3D design offers today’s creative professionals. The result: Unprecedented creative freedom, scalability, and design quality—whether you’re a 3D expert or just getting started.

This carefully crafted scene began with plain 3D models of a coffee mug and a few coffee beans. Rich organic textures were then combined with a close-up camera angle, shallow depth of field, and natural lighting to produce the "virtual photo" beside it.

In the past, creating production-quality 3D designs required extensive training and complex software few brands—and even fewer individuals—could afford, not to mention state-of-the-art hardware to operate it.

Not anymore. As Adobe Photoshop did for digital imaging, powerful new apps like those found in the Adobe Substance 3D Collection are throwing open the doors to new levels of creativity for designers of all backgrounds.

The Substance 3D Collection replicates the user interface of popular 2D design tools.

This technology's potential to transform the creative industry—particularly product design, packaging design, and virtual photography—is massive. Across industries, designers are using the Substance 3D Collection to carry out a revolution in all three fields, simplifying workflows and enjoying previously unparalleled creative precision.

# 3D design—an introduction.

Before we dig into the applications of 3D design, it helps to have an understanding of the basic steps involved. Each step builds upon the last in order to create an immersive, realistic portfolio of final assets.

## Step 1: Select or import a model.

For those using the Substance 3D Collection, getting started is as easy as selecting a model from the thousands available in the Adobe Substance 3D asset library. Say you're working on the packaging design for a new to-go coffee cup. All you'd have to do is select the model for the industry-standardized cup, and you're ready to go. If you already have a model you want to use, the Substance 3D Collection apps can ingest models in a vast array of file formats—opening the door to infinite iterations of any asset design.

The Adobe Substance 3D asset library comes with thousands of predesigned 3D models, including this to-go coffee cup. You can also import your own to get started.

## Step 2: Add details.

Here again, the 3D asset library offers a wide range of possibilities, with surfaces ranging from metals and fabrics to feathers and fur. You can also import materials from your own environment using Substance 3D Sampler. Next, add texture that tells a story in Substance 3D Painter.

"Any designer who has tried to mock up a realistic object in 2D knows how hard it is to just fake a shadow, let alone the material qualities like metal and liquid," says Jeanette Mathews, a senior product manager for Adobe 3D and Immersive. "In 3D, this is all done for you, and you can change any aspect at any time, nondestructively."

Dress your model up in materials using the Substance 3D asset library. Here, the matte of the paper cup stands out sharply against the shine of the plastic cup topper. The metallic embossing on both the lid and cup adds another layer of contrast.

## Step 3: Stage and render stunning 3D compositions.

Once you're done adding details to your 3D model, you're ready to place it within an equally realistic environment, whether a bustling city street or hazy mountain peak. Enter Substance 3D Stager, our very own virtual photography studio. Use it to arrange your model alongside other 3D objects to create rich scenes with depth. Once your composition is complete, you're ready to add lighting and frame it from any camera angle—just as you would in a real-life studio.

"Swap the materials," says Mathews. "Change the camera view. Change the lighting. And all the reflections, shadows, and refractions are updated—realistically and in real time."

Adding 3D design steps to your workflow may feel like a lot of work. In the past, that would have been the case. With the Substance 3D Collection, however, you're able to work within a design system and tools that replicate the user experience of the 2D design apps you're already using, down to familiar tasks such as masking and layering.

Of course, understanding the 3D design pipeline is one thing. Applying it to your daily workflow is another. Keep reading for more on how to make virtual photography your own, and see how 3D-powered workflows are transforming product and packaging design.

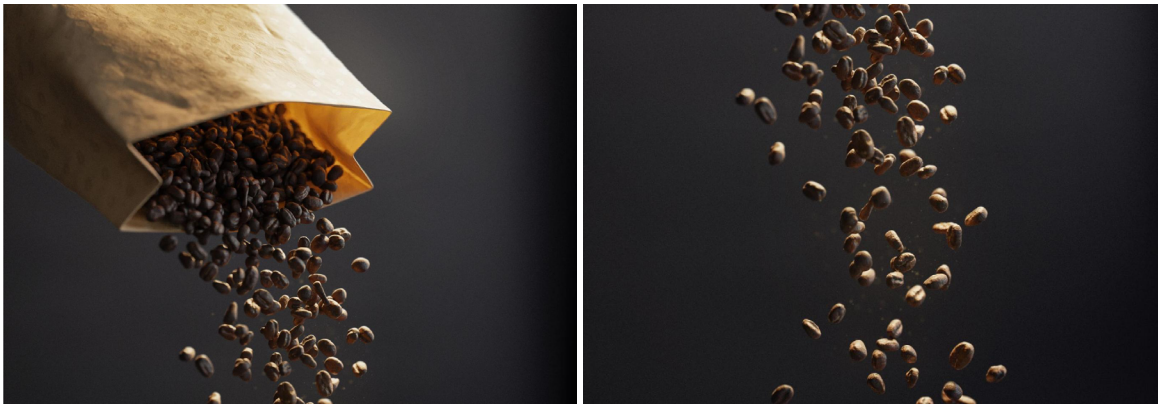
Dramatic lighting bounces off the now completed coffee cup and hundreds of individual, highly detailed beans to create an immersive digital image.

# Virtual photography is here.

Virtual photography is the process of using 3D models, 2D designs, and artful lighting to create a photorealistic image 100% digitally. And it couldn't have emerged at a better time.

The ongoing explosion in ecommerce has driven an equally sharp rise in demand for visual assets. In the past, this would have meant time- and resource-intensive photoshoots that could only begin after product manufacturing was complete.

Virtual photography has disrupted each stage of this process. You no longer have to wait for a product to physically exist before photographing it. Instead, all you need is a 3D product model to get to work capturing it in lifelike scenes. "The applications are both intuitive and far reaching, enabling endless creative possibilities for all kinds of designers," says Elizabeth Barelli, Adobe group product marketing manager for 3D and AR.

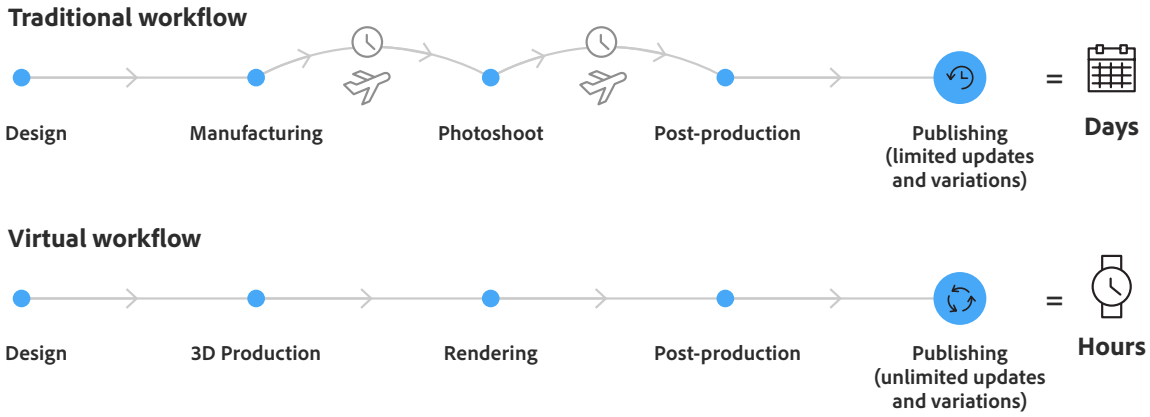


This entirely virtual photo was created by applying the collision tool to the digital beans in order to replicate real-life interactions between objects.

> **"Where there once was this long, linear pipeline, there are now quick cycles of feedback and iteration."**
>
> **Elizabeth Barelli**
>
> Adobe group product marketing manager for 3D and AR

Another benefit of virtual photography is the level of creative precision that comes with being able to move freely, rotate any object, and adjust lighting and focus at will. By working solely in the digital realm, you're able to craft that elusive perfect product shot every time.

## The advantages of virtual vs. traditional photography.




Accompanying this newfound speed and control is dizzying scalability as you're able to finesse product shots on the fly—no reshoots required.

Case study:

# Coca-Cola

Coca-Cola has been among the earliest adopters of virtual photography.

Prior to the launch of one of the company's newest brands, Topo Chico Hard Seltzer, the global design team opted for product design entirely in-house using 3D workflows.

They created the logo in Adobe Illustrator, then used Substance 3D Stager to bring their concept to life, quickly share ideas, and get instant feedback. In less than a week, they were able to create 12 different design concepts. Not only that, they used Substance 3D Stager to stage, refine, and render each one within photorealistic environments.

"With Substance 3D Stager we were able to create photorealistic imagery in a matter of hours," says Benny Lee, Coca-Cola's global manager of experiential design. "The quality of the renders was on par with what we would get with a traditional photoshoot."

Designers at Coca-Cola created these 100% digital, photorealistic images using virtual photography.

# 3D and packaging design.

Hard packaging and consumer goods companies have a long history of embracing digital design visualization tools. What's changing is where and how 3D tools are entering the process. Today, designers are taking advantage of the Substance 3D ecosystem's gentle learning curve and photorealistic asset quality to incorporate 3D into their ideation, concepting, and prototyping workflows. In doing so, they are able to experiment with and visualize their designs sooner, faster, and easier than ever.

To begin, you can either import your own 3D model into Substance 3D Stager or select one from the Substance 3D asset library, which ranges from juice jugs to shoeboxes to food cans. Next, choose from thousands of lifelike materials—including handmade rice paper, ribbed bottle cap plastic, and corrugated cardboard—as well as customizable patterns to apply to your model. Finally, import 2D design elements from Photoshop or Illustrator to add your logo or other brand imagery.

> **"The assets are completely on brand and look hyperrealistic."**
>
> **Gail Cummings**
>
> Global design lead at Ben & Jerry's

Every material in the Substance 3D asset library comes with built-in customizable parameters, allowing for quick and easy variation.

Scalability takes on new meaning when you move your design process to 3D. Localize product labels and text in a few clicks, or alter the appearance of patterns within your design with a single slider. Meanwhile, the ability to view each change from every angle eliminates any guesswork from the design process—allowing you to shortcut the prototyping review purgatory that often stalls these kinds of projects.

Cutting out production delays is an important way 3D design saves time during the packaging design phase, but it's not the only way. With your 3D packaging model in hand, you're ready to get to work creating photorealistic graphics to help market the asset the moment manufacturing is complete, shaving weeks—if not months—off the time to market.

Case study:

# Consumer packaged goods

Nikita is a packaging designer tasked with creating bottle design concepts for a new shampoo line. Her client wants a range of options to choose from, as usual, and in a timeline that normally would have her working weekends. With the Substance 3D Collection, however, she's able to quickly select a pump bottle 3D model. Already she's on to stage two: design.

Using Substance 3D Painter, she again turns to the asset library, dragging and dropping as well as painting different kinds of plastic materials onto her model. She's able to do all of this within a design system much like Photoshop, allowing for an easy transfer of her 2D design know-how.

The process is fast and frictionless, and soon she has a basic concept. Again, she's able to work quickly, importing the product's logo and decals from Photoshop and Illustrator and using interactive path tracing to ensure ultrarealistic results.

Finally, it's time to see what her concepts might look like sitting on a salon shelf soaked in natural light or reflecting overhead lights on a buyer's bathroom counter. Substance 3D Stager allows her to simulate different lighting conditions and scenes. When she finally delivers her designs to the client, she includes these images to help expedite their decision-making process.

Nikita streamlined her packaging design process using 3D assets, materials, lights, and backgrounds in the Substance 3D Collection.

# 3D and product design.

For product designers, a 3D workflow also means the chance to visualize a photorealistic version of a concept before it's physically manufactured. As a result, designers can experiment endlessly with color, materials, patterns, and other visual mechanics before engaging all the resources required for physical sampling.

If you already have a model from your manufacturer that you want to use, all you would need to do is import it into Substance 3D Painter to quickly get to work dressing it up in various materials or trying out different patterns and textures. If you're starting from scratch, the Substance 3D asset library has 3,000 high-quality models to choose from, including a wide range of furniture, tech devices, automotive parts, and more.

> **"I see Substance as a research tool as well as a rendering tool. I want to use it to communicate on my projects."**
>
> **Marion Buhannic**
>
> Color and trim designer, Faurecia

Let's say you're designing a speaker, and you're curious what it would look like if the holes on the speaker itself were smaller or shaped as something other than a circle, or if the cover were a matte plastic versus a high-gloss aluminum. With a 3D-powered workflow, a few clicks are all it takes to find out—and in a level of hyperrealistic detail that allows you and your team to avoid commissioning physical samples until you've all agreed on the product specs.

Quickly and easily iterate versions of your product's look with the Substance 3D Collection.

Using 3D design doesn't just allow you to visualize infinite versions of the product itself. It also offers a sneak peek at how those versions look in their natural habitats. For example, you can take that high-end speaker you just created and, using Substance 3D Stager, quickly style a variety of 3D rooms to place it within — then use those scenes to further refine your design.

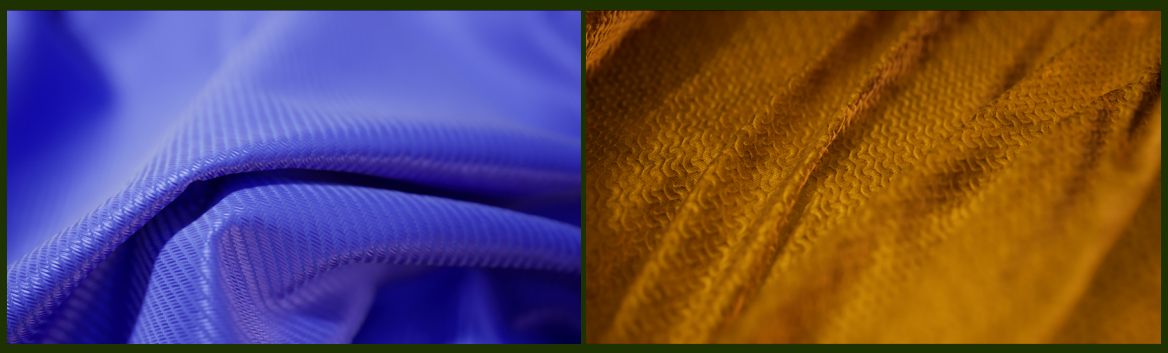
## Case study:
# Fashion design

When it comes to fashion, tastes evolve overnight—and so must new products. By allowing designers to experiment with lifelike digital representations of physical materials like cotton, leather, and wool prior to manufacture, the Substance 3D Collection helps reduce the number of physical prototypes needed, thereby shortening the production process. A designer only has to craft the cut and construction of a garment in an app like CLO, then import it into Substance 3D Stager to quickly discover what their design would look like if it were made from denim, specialized sportswear fabric, or almost 2,000 other options.

Designers looking to use a fabric they already have can snap a picture of it using Substance 3D Sampler. The app extrapolates the data needed to convert the image into 3D material properties—such as color, glossiness, and micro-details like fabric weave and pile—before applying them to their designs.

Each material is fully parametric, allowing for an infinite number of variations. "The benefit of applying Substance material in CLO and to a work in progress and being able to change the parameters of the material on the go really sets a new standard," says John-Daniel Isacsson, a design process developer.

Next comes the detail work. Using Substance 3D Painter, designers can add seams, zippers, and pockets, along with embroidery, flocking, glitter, and plastic injection. Finally, they can bring it all to life by adjusting with absolute control a material's color, gloss, thickness, metallicity, and more.



Translate real-world fabric properties such as texture, sheen, weave, and drape into reusable 3D materials with Substance 3D Sampler.

# Tap the power and potential of 3D design.

The 3D generation is here. Today, designers across industries and experience levels can get started with 3D workflows, opening the door to new creative freedom, scalability, and high-quality designs.

## Creative freedom

The Substance 3D Collection takes each stage and element required for a photorealistic 3D model or scene and offers production-quality assets that users can customize in a nondestructive way. With ready-to-use assets and the ability to import assets from the real world, designers are effectively untethered from the physical realm, leaving them to explore new realms of creative freedom.

From the positioning of each box to the way the light bounces off the silk, this virtual photo shows the creative control 3D offers designers, who are no longer bound by physics and chance when creating images defined by movement.

## Scalability

By eliminating some of the most time- and resource-intensive stages in the asset creation process, 3D design opens up additional creative possibilities and levels of production. It creates a new kind of digital content supply chain—one nimble enough to meet the increasing demands on designers to generate content for ever-multiplying channels.

Iterate your designs at the speed of your creativity by quickly swapping lifelike models and materials in and out of your compositions.

Craft a product shot on an office desk, then swap it out for a coffee table or a nightstand. With the click of a button, you have three new photorealistic assets to post to your brand's social feeds.

When iteration is endless and effortless, quality and quantity are no longer in competition.

## Design quality

The ability to create designs faster and with more freedom does you and your team little good if those designs aren't also dressed for the runway. And that means fussing about details. From the way light bounces off an object to the number of threads visible in a fabric, the eye can sense when even the smallest elements are off.

Fortunately, the Substance 3D Collection team at Adobe has stressed over these individual elements so you don't have to—equipping you with the professional-grade materials, textures, lighting, and other assets you need to generate stunning photorealistic assets regardless of your industry or previous 3D design experience.

"Life is in 3D," Barelli says. "Now creativity is, too."

Substance 3D Painter comes loaded with a dedicated feature for applying your own stitches—or you can browse the 3D asset library's portfolio of rich materials for even quicker results.

# Adobe can help.

Smart creative apps and an ever-growing library of production-quality assets combine in the Adobe Substance 3D Collection to make 3D design more approachable than ever. Easy to use and impossible to outgrow, these tools are transforming workflows for designers of all backgrounds and across industries, allowing them to create stunning content at warp speed.

Learn more

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