Remixing the Museum: Entering The Third Dimension

How Does a 3D Printer Work?

A 3D printer makes a solid 3D physical object from a digital model. The printer digitally slices this model into 2D shapes and then prints these layers of 2D shapes on top of one another. There are many different types of 3D printers from basic home models to large complex industrial machines. But they each share the same process—they build the object in layers. Most printers use a plastic filament that is melted an extruded to make the object, but more advanced printers use powered forms of polymer, or even metal, to make more detailed objects than other plastic printers.

The printing process takes a long time depending on the size of the object. The printed objects you see in this exhibition took many days to make. The *Sleeping Pig* for example, took over 107 hours, which is about four and a half days!

Take a look at the 3D printer, the Ultimaker, in the exhibition and watch the time lapse video to see the printing process. This type of printer uses a type of plastic filament that is melted an extruded through a tube to build up the object in layers.

Who Uses a 3D Printer?

The uses of 3D printers are endless for many different industries that either have low or high volume output. Not only are 3D Printers used by artists and in the art world, but they are used in the fields of medicine, aerospace, automotive, engineering, fashion, product design, jewelry, research, architecture and much more! 3D printing technologies have become accessible for home use, so now everyone can invent, create and explore making something new.

How Do Museums Use 3D Printing Technologies?

Before the arrival of the 3D printer, visitors would never be allowed to touch artifacts or objects in a museum's collection. Now the untouchable becomes touchable—and a new learning experience unfolds for visitors.

Image credit: Palmyra's busts destroyed by ISIS are restored using 3D printing. Source: https://3dadept.com/3d-printing-helps-to-restore-palmyras-busts-destroyed-by-isis/

Cultural Preservation. One way museums can use 3D printing is to help with the restoration and preservation of objects. If an object is broken, pieces can be scanned and then printed to fit the section that has been broken. This process can even be used to reconstruct an entire object that may have been destroyed.

Image credit: A 3D printed painting at the Prado Museum (source: https://www.aniwaa.com/3d-printing-for-archeology-and-museology/).

Research. 3D printing is another tool for museum professionals and researchers to capture extreme detail of ancient objects, artworks or artifacts. With a 3D model, they can study and archive them in more detail than in 2D pictures. Entire locations or archeological sites can be 3D scanned and then aspects of them can be even be printed out and displayed in another location.

Learning Remixed. 3D printing provides a deeper opportunity for new kinds of creative learning experiences. Some museums have made their 3D files available so that visitors can download the files and print the models and use them in their own innovative ways. These prints can be combined, taken apart, reassembled. The possibilities are endless.

Accessibility. 3D printing allows for museums to create replicas of objects from their collections. These reproductions can be handled by visitors without damaging the originals. 3D printing can also give the opportunity for a visitor to experience a 2D object in a three-dimensional way. For example, a painting can be printed in relief so that visitors with visual impairments can now experience the object.

Explore the 3D models in the exhibition. How does it change your experience of the sculptures?

Share your experience on Instagram and Twitter by mentioning us @MichenerArt using the hashtag #VirtuallyRudy.

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