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PRINTING 3D-ART.

IMPRIMIENDO ARTE EN 3D

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RESUMEN: La tecnología está cambiando la manera de ver el mundo. Basta pensar en cómo se vería el mundo sin inventos como la fundición del hierro, máquinas de impresión, o algo tan básico como la pintura. La torre Eiffel no estaría allí, ni los libros ni cualquier otro objeto pintado. Pero ¿cuál será la próxima tecnología que remodelará el mundo? La impresión en 3D será sin duda una de ellas ... y está sucediendo ahora! El arte tendrá pronto su nueva dimensión. Este artículo le abrirá una puerta para descubrir las posibilidades de la impresión en 3D para el mundo del arte, tanto ahora como en el futuro.

SUMMARY: Technology is reshaping the way we see the world. Just think what the world would look like without inventions like iron casting, printing presses or something as basic as paint. The Eiffel tower wouldn't be there, nor books nor any painted object. But what will the next technology that reshapes the world be? Well, printing in 3D is surely to be one of them...and it is happening now! Art will soon have its new dimension. This article will give you a glance on the possibilities for 3D printing for art, both now and in the future.

Palabras clave: Impresión 3D; revolución; arte; escultura

Keywords: 3D printing; revolution; art; sculpture

PRINTING 3D-ART

"A great artist is always before his time or behind it".

George Edward Moore.

1. INTRODUCTION

Printing technology developed its roots in Mesopotamia in 3500 B.C. and took off in Europe in the 15th century. This enabled mankind to print books, pamphlets and newspapers. Printing presses were modernised and in the 20th century the computer joined the ranks. More and more documents and pictures were made using computers and printed using ink-matrix or laser technology. But going almost unnoticed, a revolution is currently taking place in the printing world: 3D printing. 3D-printing began with printing hot liquid plastics, with printing heads similar to 2D ink printing. The plastic will solidify and on top of the plastic layer new layers are added in turn.

However, new affordable 3D printing technologies have been developed and things have gotten very exciting indeed. The use of a wide variety of new materials has been researched and innovative new applications have been discovered. The possibilities: think about printing titanium rings for your loved ones, metal statues with forms unable to be crafted before, or a delicious 3D cake with a special recipe. This revolution will not only reshape the art sector, but also the way we see the world!

Now that you have had a taste of the possibilities of 3D printing, the next

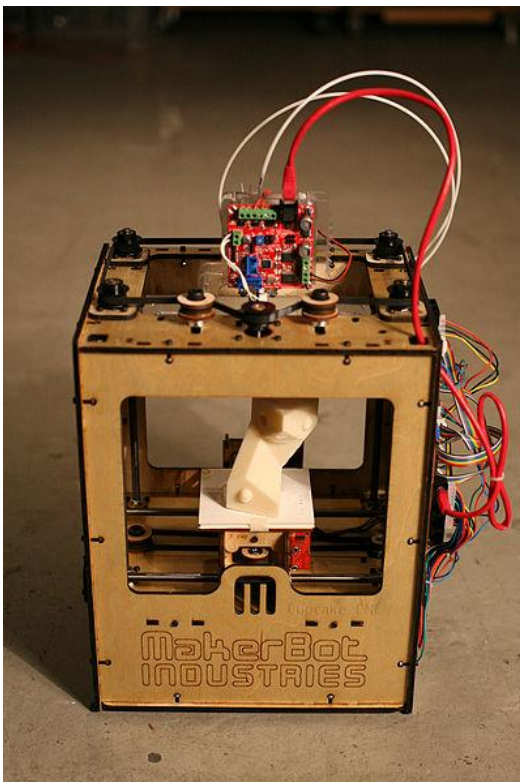


sections will introduce some low-cost options to 3D printing, emerging business ideas, and take you on a visit to the future.

2. LOW COST 3D-PRINTING

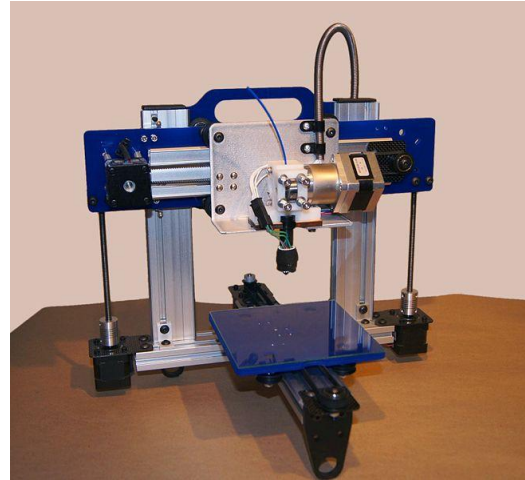
There are two ways of printing designs: buy your own printer, or ask a third party to print your design and send it to you.

The two most popular 3D printers for home use operate using a printing head which heats up a plastic filament to around 180 degrees Celsius which melts the plastic. By moving the head, layers of plastic are formed. For less than €650, you can have a Reprap 3D-printer, which is designed to replicate parts it is made off as well as unique designs (Reprap, 2011). The Makerbot is a bit more expensive and more professional, and will set you back around €1300. So far, ABS plastic is one of the favourite materials used as a filament. But people are openly experimenting with the materials you can print...chocolate is drawing great interest for example (Ethan, 2011).



Another economical way of printing your designs is by sending them to a third party, like

Shapeways.com or Fabidoo.com. They have professional 3D printers which can print your design not only in plastic, but as well in glass, ceramics or in metals like silver or steel. Within three weeks you have your design!



3. SCULPTURE AND BUSINESS IDEAS FOR 3D PRINTED ART

We are now in the era of digital communication, where the Internet has broken the barriers between countries and has soaked through the daily life of contemporary men and women. This breaking of borders has brought different cultures closer together; with access to information and technology now close at hand and of course the openness to other ways of understanding art in all its dimensions.

If we look back to the beginnings of sculpture, we see each civilization expressing itself in a different way using different techniques and materials, and evolving throughout history. The themes used vary depending on the moment in time and the geographic location. In Asia, many sculptures are religious art pieces based in Hindu and Buddhist beliefs. In Africa, the style, characteristics, materials and techniques used in the creation of sculptural pieces differ from one region to the next. We just have to compare the monumental sculptures of Ancient Egypt (i.e. The Sphinx) with the small pieces of sculpture made in Central Africa, where the figures were typically elongated bodies, angular

shapes and facial features representing an ideal rather than an individual. The religious character pervades the work, as can also be seen in American sculptures, for example, the monumental sculptures made by the Olmec (Olmec Colossal Head) and by the Mayan (Chaac) people. Oddly, in Europe, the earliest piece found was of a female bust, without any religious implication.

In any case, there is something that prevails from one culture to another: the desire of immortality and perpetuity. Both sculptors and their patrons pursued the idea of permanence by using durable and exclusive materials such as bronze, gold, silver, marble, granite and other kinds of expensive stones. They wanted to buy the favour of the gods by creating colossal works such as the pieces found in Teotihuacan or, in more recent times, the sculpture was used as a symbol of power, wealth and intellectual status. A good example of this are the equestrian statues often used in commemorating an important victory in a battle.

Nowadays, the sculpture is not meant to be merely a decorative part of the domestic and urban space, but to also provide functionality,



and at low cost if possible. More and more cities use this new functional trend of the sculpture in its streets. So, walking through the streets of Eindhoven (The Netherlands) we find a "*Kauwgombal*", where pedestrians can stick their chewing gum instead of throwing them to the ground.

Obtaining this original object is easily achievable with the use of a 3D printer. The only challenge is the creation and incubation of a fresh idea as realising the design would not be difficult at all. When you're designing a 3D model for print there's little need to pay any attention to reality. Most objects will only contain the meshes that are visible; objects don't need to really connect. You can completely ignore the physical world and let your imagination fly!

You can focus on designing 3D objects while another company will do the rest for you. Imagine how the streets of any European city would look with such as ground-breaking designs. Or moreover, how modern and colourful pubs and housing can be with these innovative proposals. With the 3D printer technology, art and sculpture in particular are no longer a delicacy reserved for elite classes. Looking at today's successful businesses, we realize very few are focused on luxury or magnificence, but on simplicity and functionality. It's now time for art to participate in the success of simplicity and functionality by using the possibilities of 3D printing.

4. VISIT TO THE 3D PRINTING FUTURE

Printing technologies are advancing rapidly, and prices are falling on account of this. It won't be long before 3D printers become more affordable and mainstream, enabling households to print whatever they like using the designs they choose. More printable materials will be available, like cotton, silicon and edible materials. Artists can use the Internet and social networks to sell their creative designs for hip products, like shoes.



Don't forget medical usage! 3D artists can use their skills to design organs. The first 3D printed kidney has already been implanted (Atala, 2011). 3D legs or arms can also be printed with new innovative and creative designs.

Conclusions

3D printing has started a revolution in the way objects are designed and made. It doesn't have to be expensive, since you can send your design over the Internet to a shop which will print it for you in a variety of materials. Innovative sculptures can be printed which can be functional or just decorative. Art is the skin of a changing society. A skin that evolves at the pace of new technologies and teaches us not to stay stuck in the past. Time is there for art to use the new technology of 3D printing. That time is now!

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