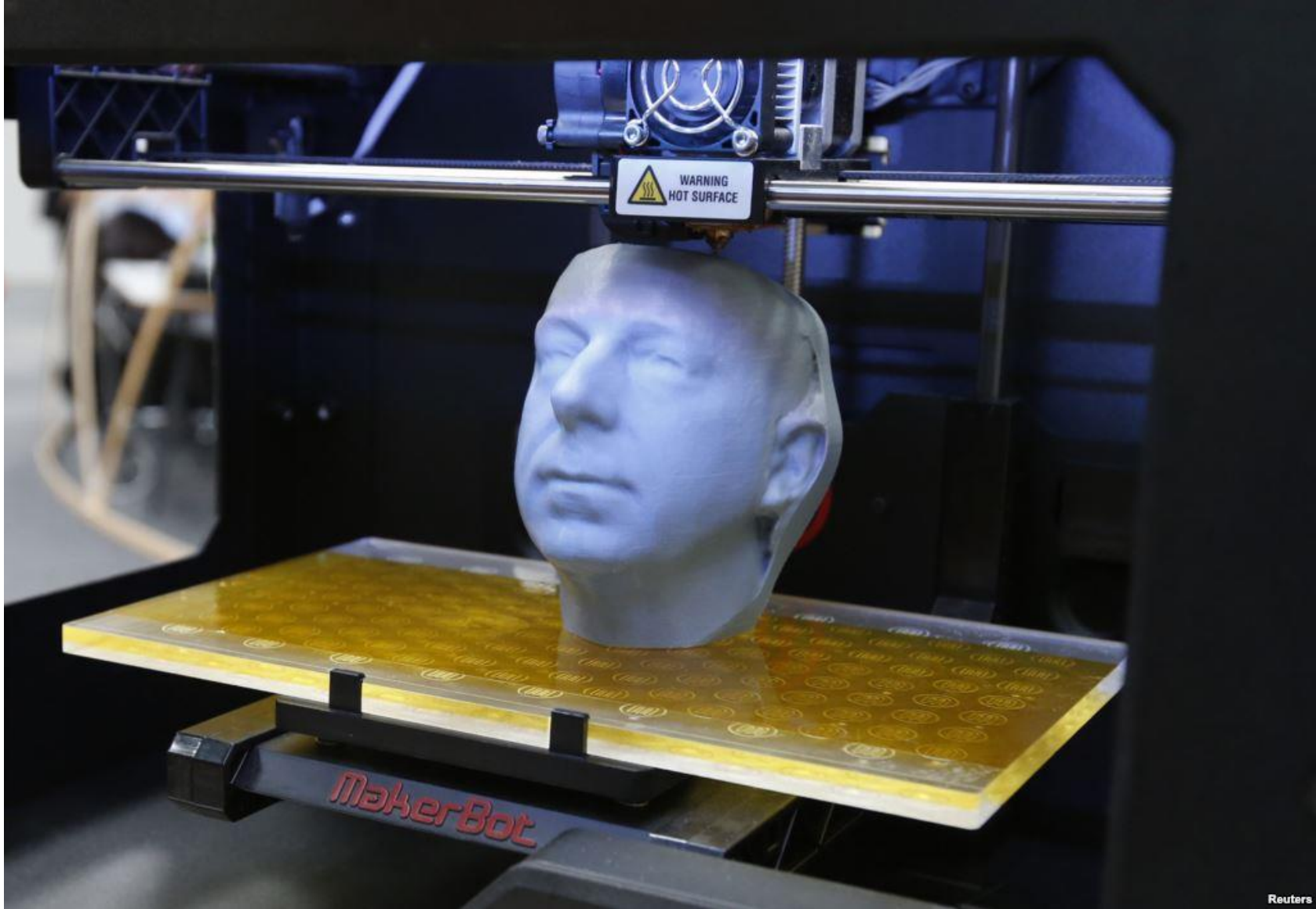


Mapping out the 3D Web

Presented by Michael Groenendyk

Who cares about 3D models? Who should
librarians care?





Rapid growth in 3D printer use raises public policy issues for libraries and society

Why is 3D Printing Important for Librarians?

The library community stands on the front lines of the digital revolution. Libraries connect entire communities with the digital technologies that are fundamentally changing the way we process and utilize information. 3D printing is among the most recent transformative digital services to be offered in libraries. A small, but rapidly growing number of public libraries—currently about 250 locations¹—in every part of our country are adopting 3D printers and making them available for patron use.









open hardware





 **SOLID
CONCEPTS®**

October: Poppy, an open and affordable humanoid robot to experiment with.





**OPEN SOURCE
PROSTHETIC**

Reverse engineering



3D Preservation

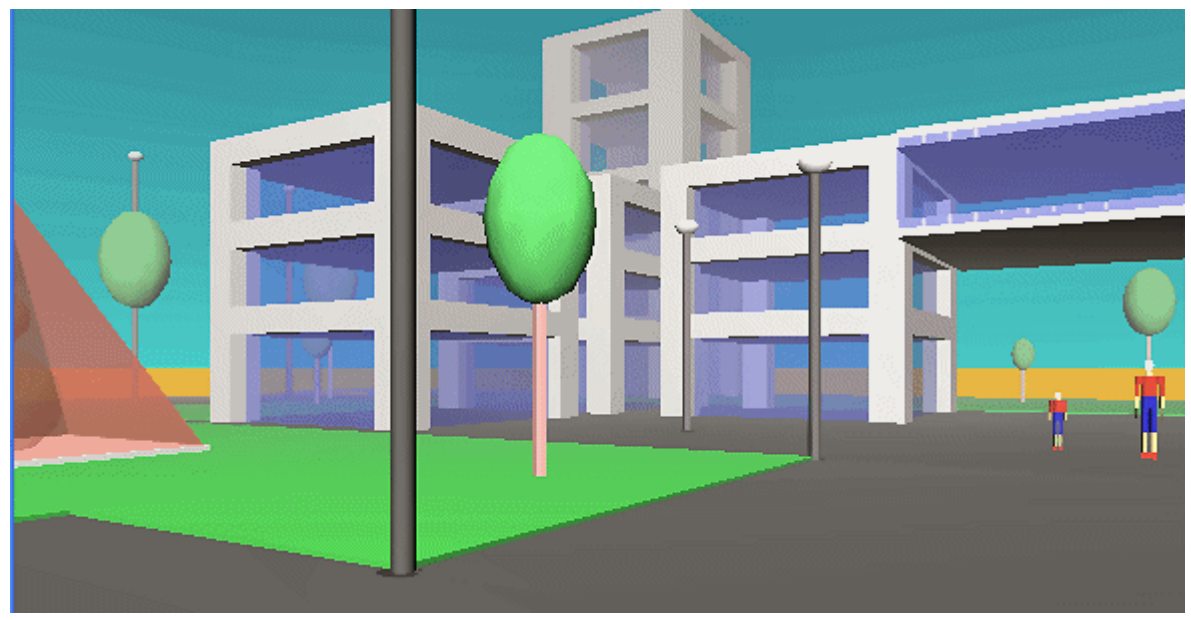


A brief history of 3D models on the internet

Education and Discovery Era (1992 – 2005)

VRML

VIRTUAL REALITY MODELING LANGUAGE

The logo features the text 'VRML' in a large, bold, grey font. Below it, the words 'VIRTUAL REALITY MODELING LANGUAGE' are written in a smaller, grey font. To the right of the text are three 3D geometric shapes: a red cube, a green sphere, and a blue cone. A thin red horizontal line passes through the center of these shapes.





Our project logo
(click here to read about its [design](#))

The Digital Michelangelo Project



Our laser scan of the David
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Today's Specials...

- **3D DECAF CD-ROM** now available!
- **MORPHMAGIC** plug-in for MAX now available!
- **3D EMPORIUM** Software, Models, Plug-ins & more!
- **FREE PLUG-IN ROUTINES** and other free software!
- 3D Cafe was chosen as **THE BEST OF '96** by 3D Design magazine!
- 3D Cafe contains the world's largest library of free 3D models!
- Netscape Communicator users may experience problems!

● Visitors since March 1, 1996: **888.888**

May '97 Platinum Award Winner



3D Cafe, 3-D Cafe, 3DCafe are trademarks of Platinum Pictures

Large Geometric Models Archive



Georgia Institute of Technology

Models



Stanford Bunny



Turbine Blade



Skeleton Hand



Dragon



Happy Buddha



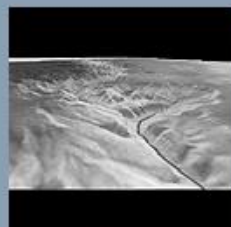
Horse



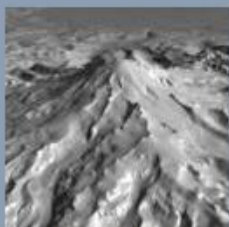
Visible Man Skin



Visible Man Bone



Grand Canyon



Puget Sound

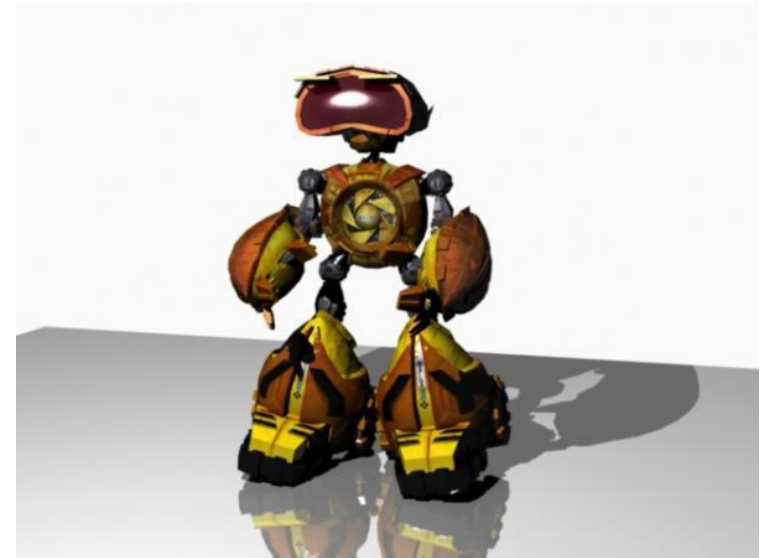
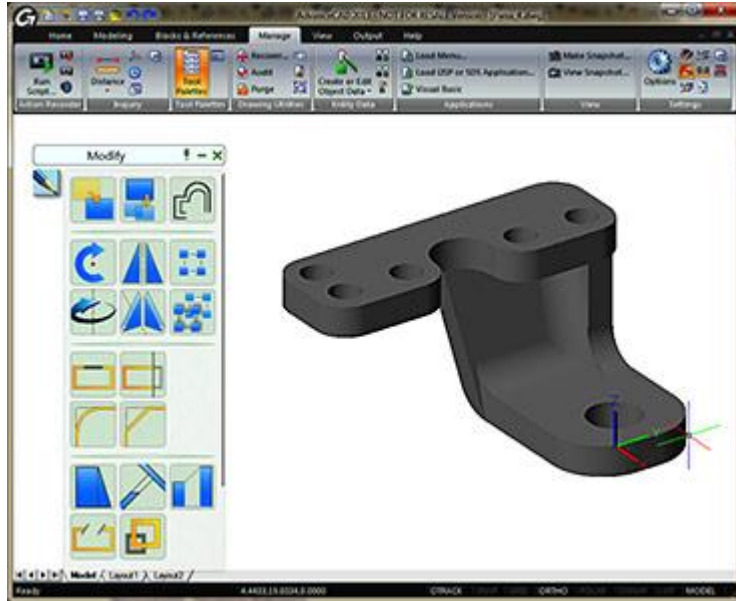


Angel

Free, Educational & Experimental

3D Model Marketplace Era (2005 – 2010)

CAD vs Animation





USERS

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- DEALERS
- SUPPORT
- CONTACT US

MANUFACTURERS

TRACE Group

- ENGLISH
- FRANCAIS
- ITALIANO

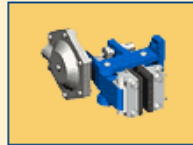
TRACE PARTS



100,000 + of standards and manufacturers' parts,
seamlessly integrated to the main CAD systems



Ask for your free
30 day trial
of Trace Parts 3D



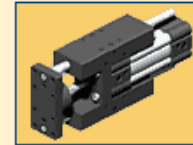
Zoom



Zoom



Zoom



Zoom

Trace Parts version	Compatibility / CAD system	Supported versions	Documentation	List of parts
Trace Parts 3D v1.2.5		98+ / 99 / 2000 / 2001	TPSWFr.pdf [560 Ko] TPSWUk.pdf [550 Ko]	TP3DParts ListFrImgs.zip [2,2 Mo] TP3DParts ListUkImgs.zip [2,3 Mo] TP3DParts ListItImgs.zip [2,3 Mo] TP3DParts ListSpImgs.zip [2,2 Mo]
	SOLID EDGE <small>Voyager Member</small>	v6 / v7 / v8 / v9	TPSEFr.pdf [530 Ko] TPSEUk.pdf [510 Ko]	
	Mechanical Desktop	R4 / R5	TPMDTFr.pdf [460 Ko] TPMDTUk.pdf [590 Ko]	
Trace Parts 3D v1.2.6	Autodesk Inventor	R3 / R4	TPInventorFr.pdf [560 Ko] TPInventorUk.pdf [535 Ko]	
		v5 / v6	TpthinkFr.pdf [555 Ko] TpthinkUk.pdf [515 Ko]	
		6.4	TPTopFr.pdf [480 Ko] TPTopUk.pdf [440 Ko]	
Trace Parts 2D v1.2.0		2000 / 2000i		

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A - E



Actuators



Adapters



Adjusters



Airlocks



Alarms



Amplifiers



Anchors



Arbors

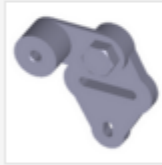
F - J

K - O

P - T

U - Z

ALL



Arms



Backplanes



Baffles



Barrels and
Drums



Bars



Bases



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\$ 5	asda	2011-01-21
\$ 150	Lorem ipsum dolor sit amet	2011-01-21
\$ 555	wvwr	2010-11-25
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Price: **\$ 123.00**



Price: **\$ 120.00**

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Price: **\$ 100.00**

.3ds



Price: **\$ 78.00**

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3D Printing Era (2010 - Present)







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[Glossary](#)
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RepRap

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Welcome to RepRap.org

RepRap is humanity's first general-purpose [self-replicating manufacturing machine](#).

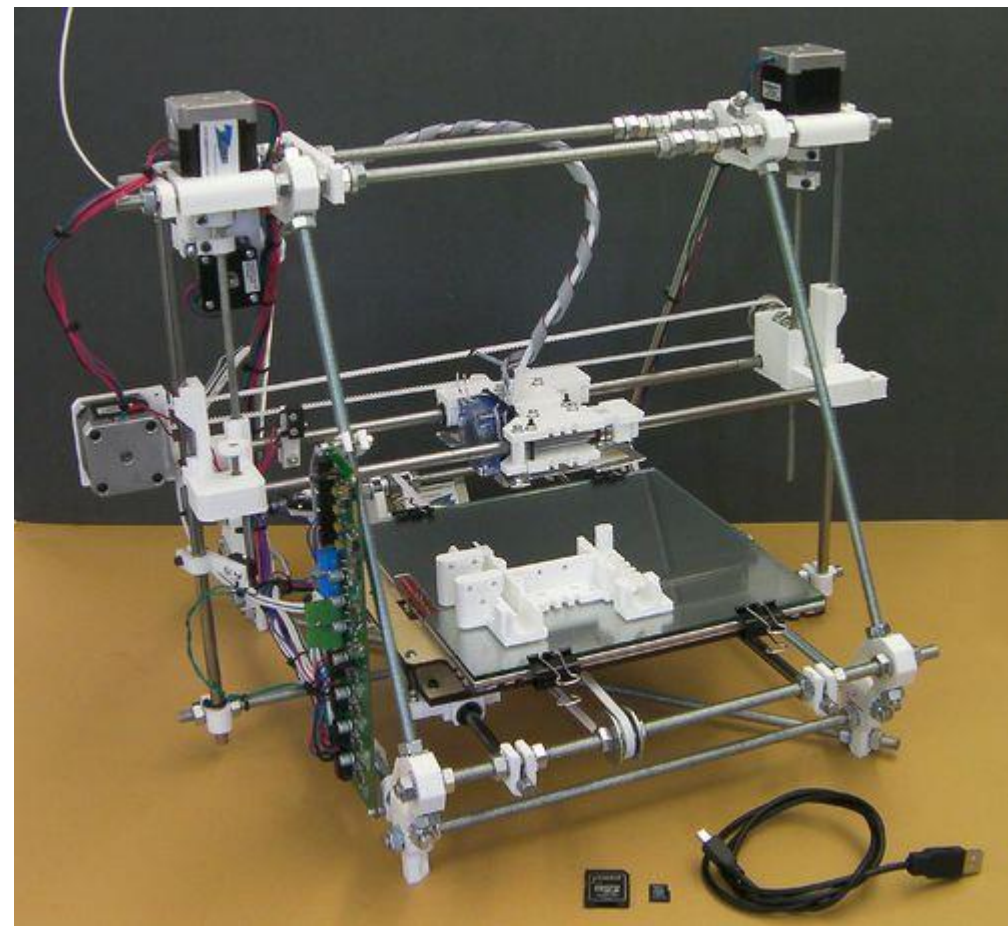
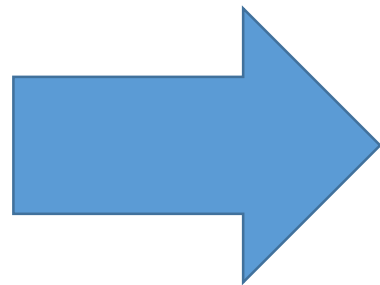
RepRap takes the form of a [free desktop 3D printer](#) capable of printing plastic objects. Since many parts of RepRap are made from plastic and RepRap prints those parts, RepRap self-replicates by making a kit of itself - a kit that anyone can assemble given time and materials. It also means that - if you've got a RepRap - you can print lots of [useful stuff](#), and you can [print another RepRap](#) for a [friend](#)...

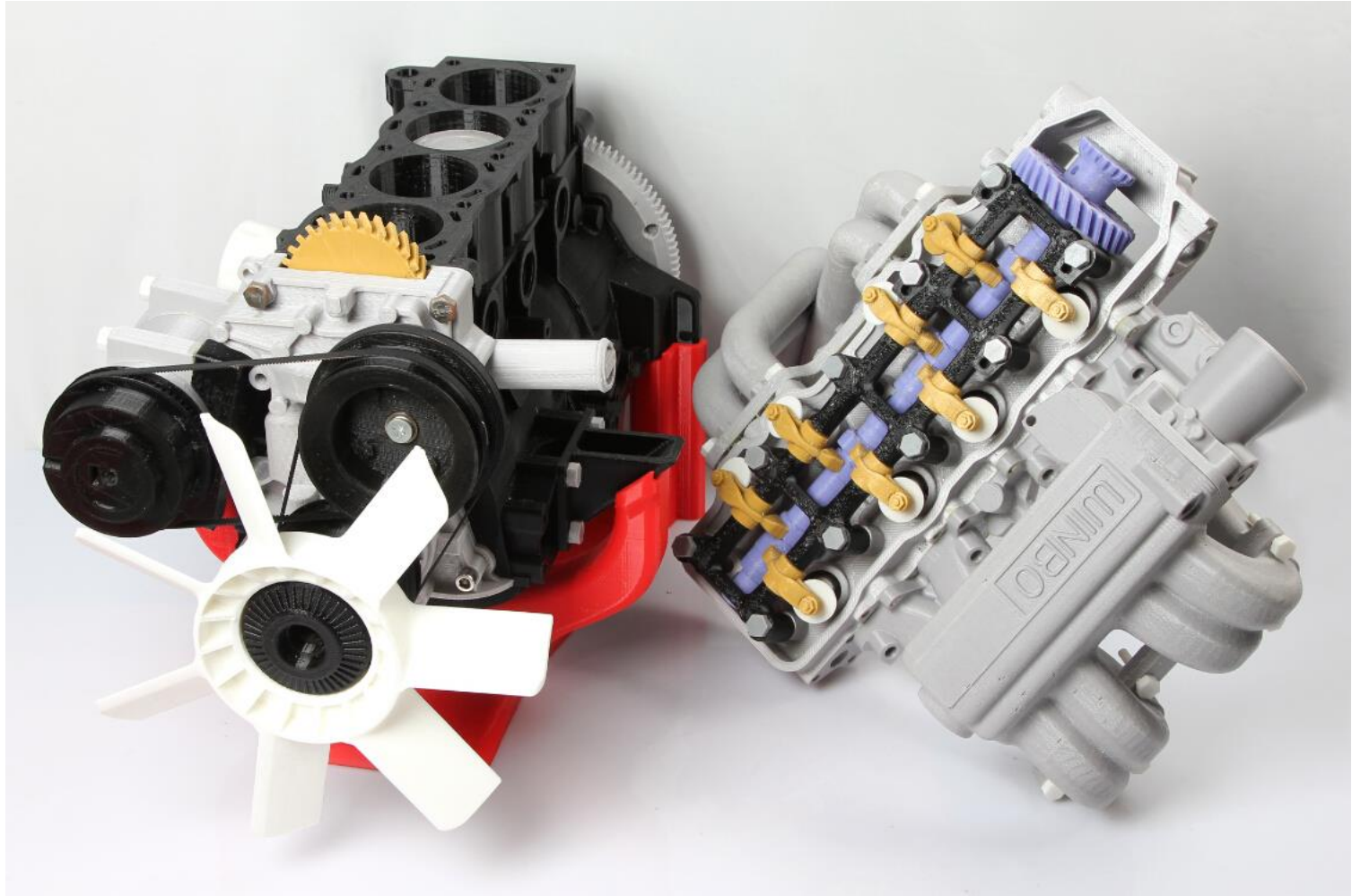
RepRap is about making self-replicating machines, and making them freely available for the benefit of everyone. We are using 3D printing to do this, but if you have other technologies that can copy themselves and that can be made freely available to all, then this is the place for you too.

Reprap.org is a community project, which means you are welcome to edit most pages on this site, or better yet, create new pages of your own. Our [community portal](#) and [New Development](#) pages have more information on how to get involved. Use the links below and on the left to explore the site contents. You'll find some content [translated into other languages](#).

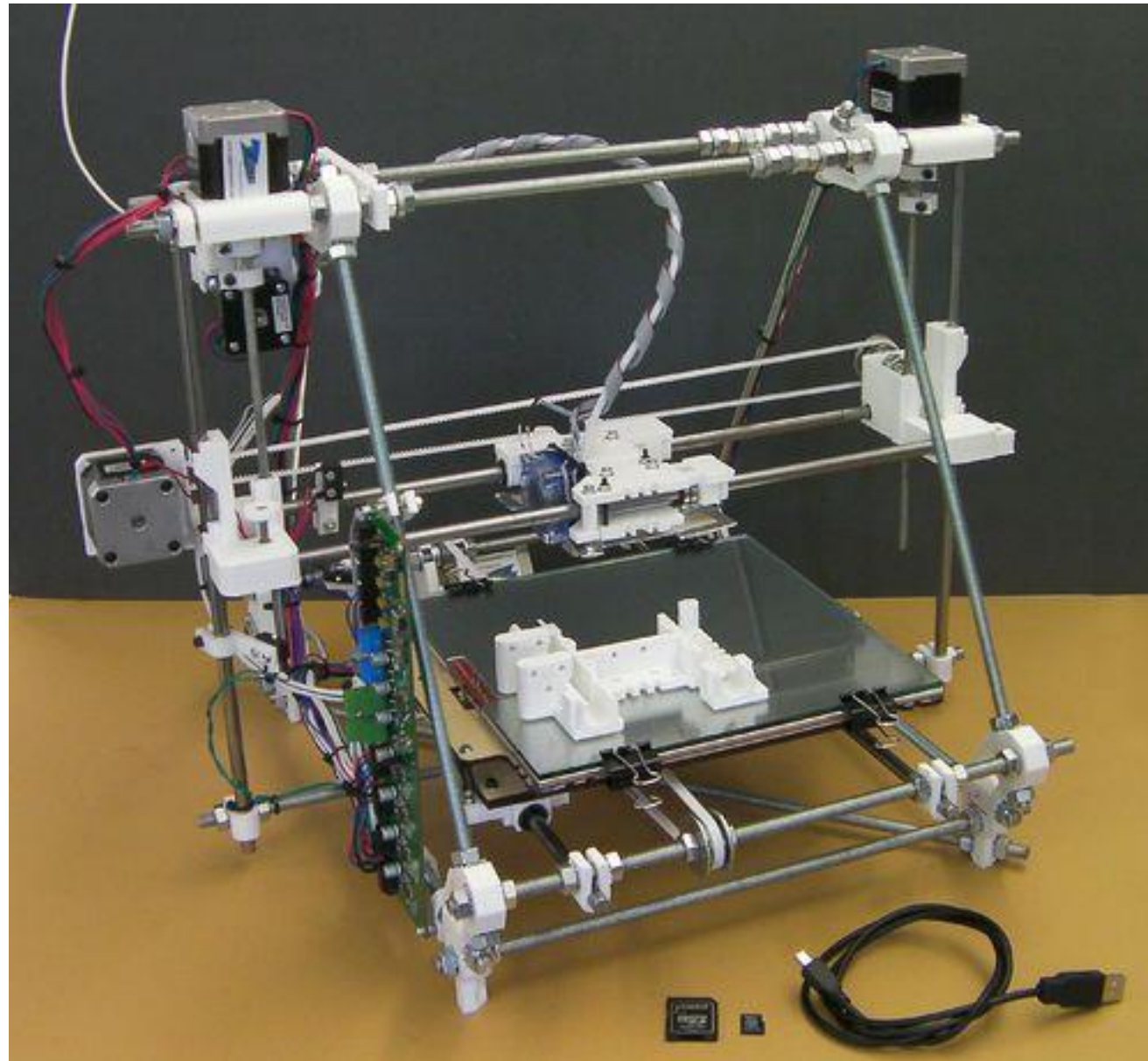
RepRap was the first of the low-cost 3D printers, and the RepRap Project started the open-source 3D printer revolution. It has become the most widely-used 3D printer among the global members of the [Maker Community](#).

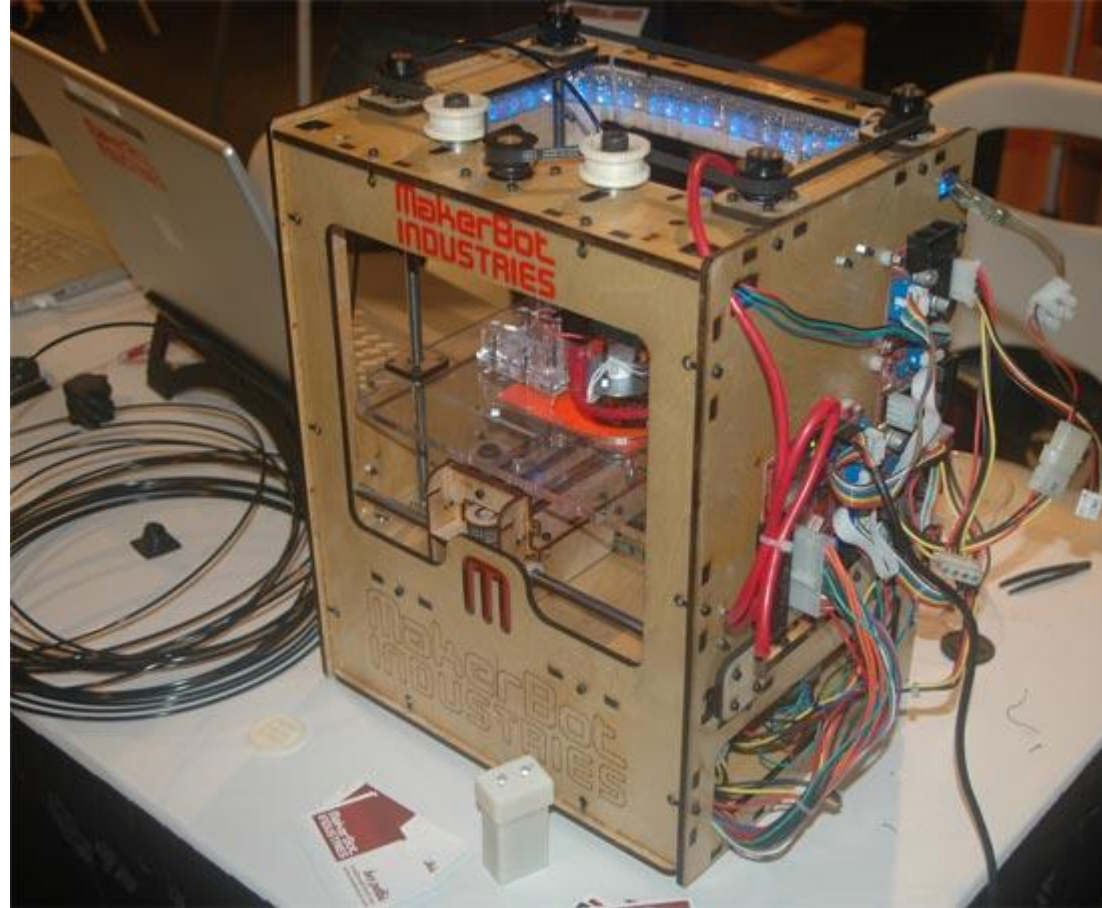
RepRap state-of-the-art when this page was last updated (January 2016) is well represented by the [RepRap Snappy](#) and the [RepRap Generation 7 Electronics](#). By state-of-the-art we mean the best self-replicators. These may not be the most technically advanced 3D printers, but - arguably - any self-replicator is, by that very fact, more advanced than anything that is not.

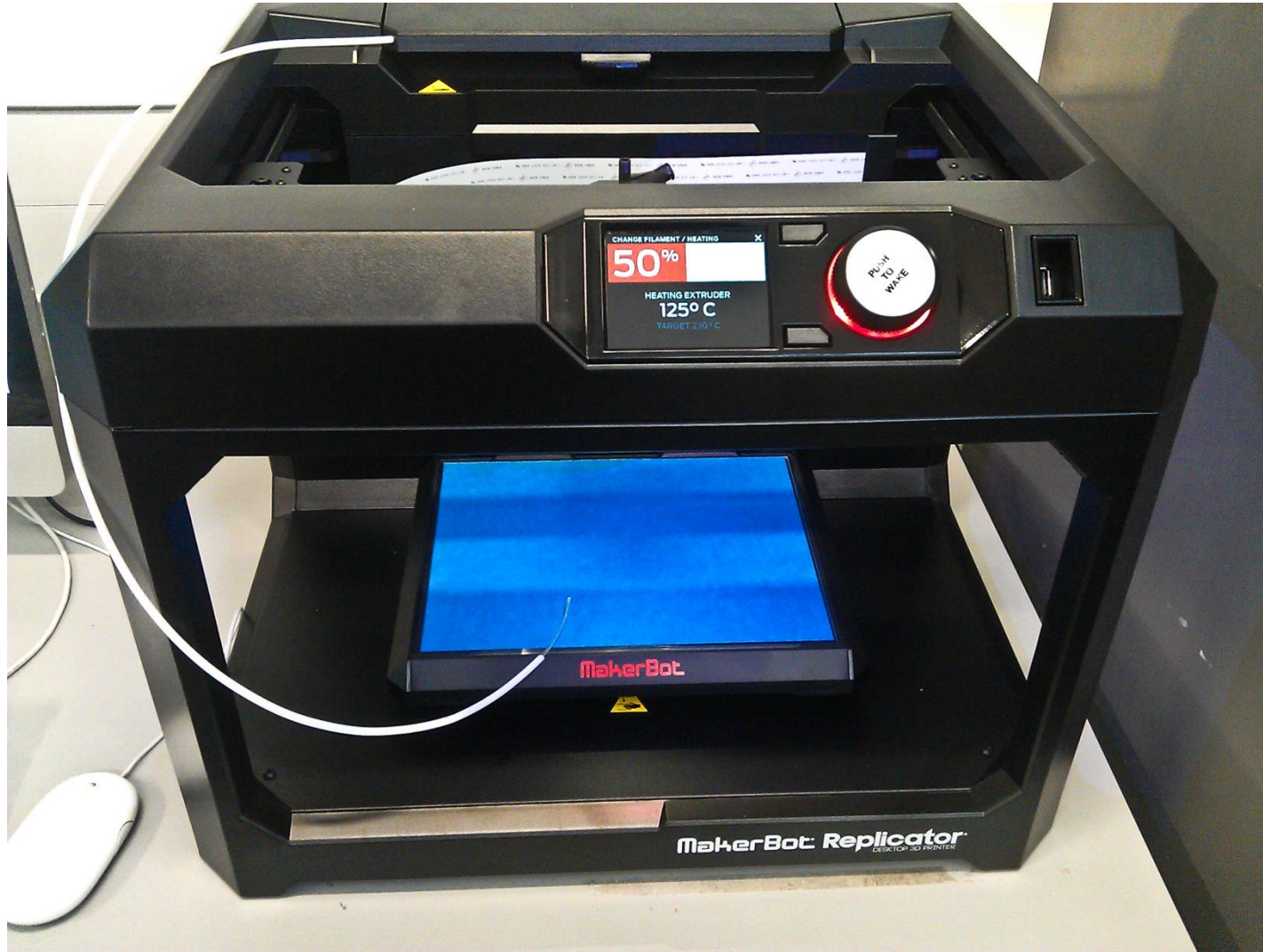














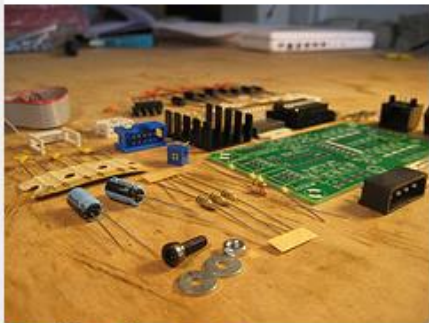
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Welcome to Thingiverse.

This is the universe of things. [Upload](#), make, and share. Let's create a better universe.

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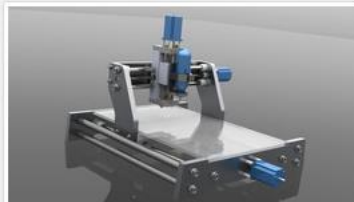
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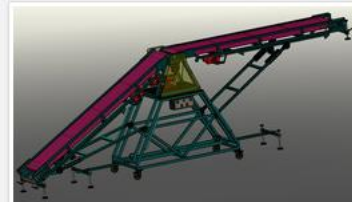
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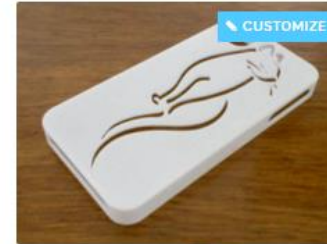
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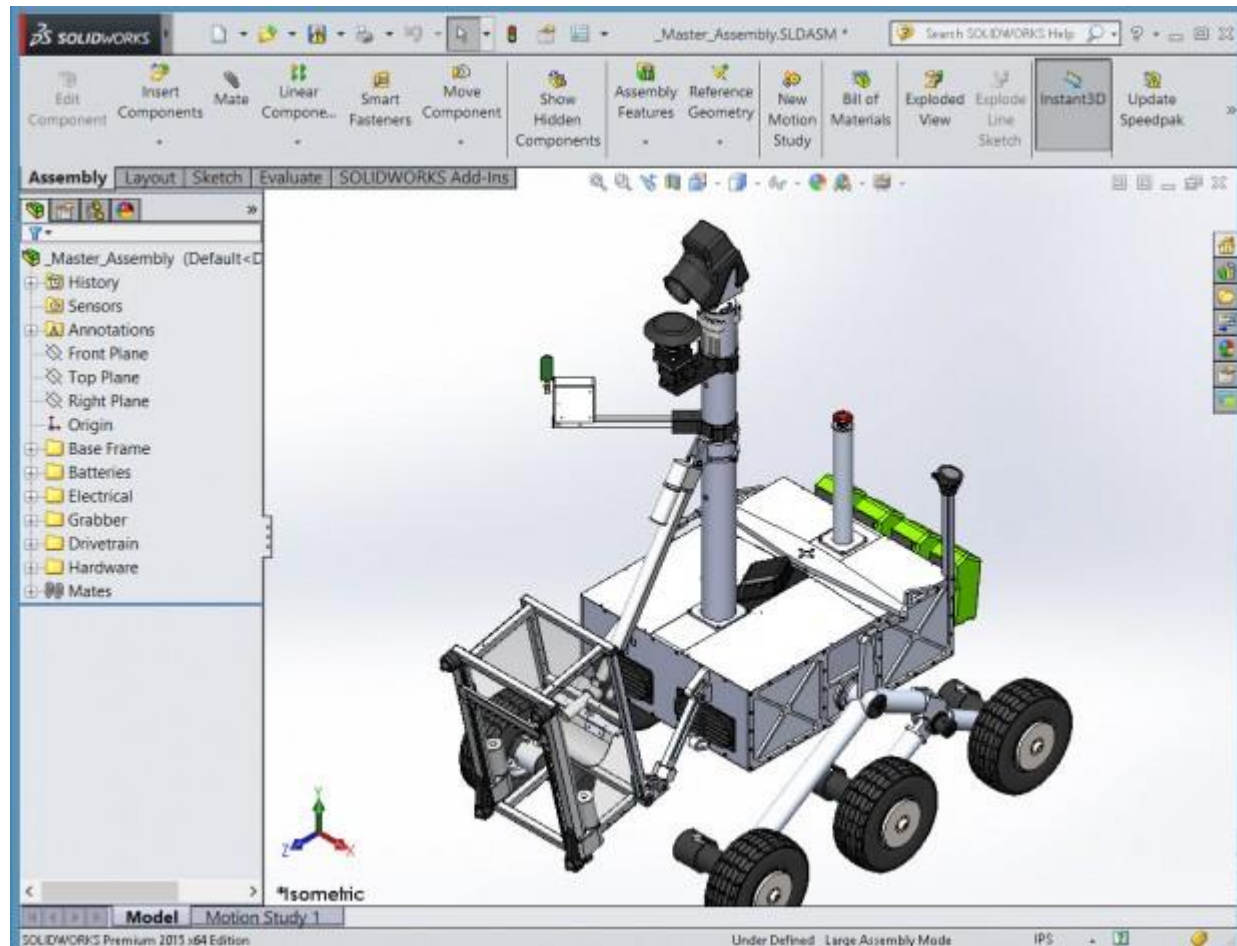
All Cases

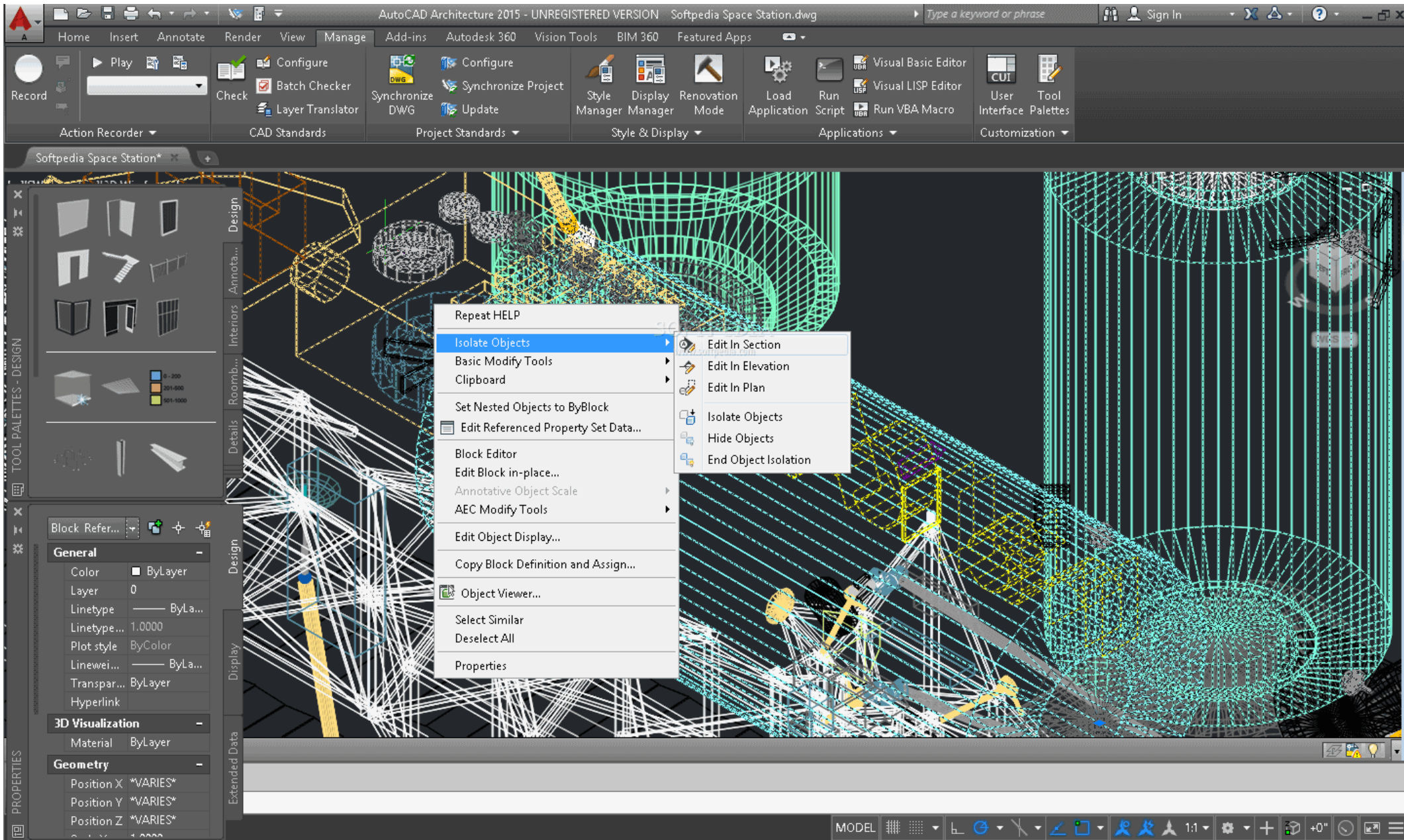
Moto 360 Bumper Case - Tall, Gen..
\$10.38 CAD by raelxROUND II: Nightscout Dexcom-Mo...
\$77.82 CAD by Mads_RingBrixometer Case - Original
\$15.50 CAD by oopsclunkthudMoto 360 Bumper - Short, Gen 1
\$10.37 CAD by raelx

How many 3D models are actually online?
Why should we care?

Billions of CAD models

- Can be generated in different dimensions
- Smaller selection of core models
- Difficult to measure
- Historic value of design
 - How many models have this value







Millions of animation-related 3D models

- Significant 3D artists
- 3D models from culturally significant games and movies



SHINY HAIR WITH ZEPHYRUS AND BRID CONTACT FROM THE BODY TO CREATE THE DRAFT BRID

I USED THIS PICTURE WITH SPOTLIGHT TO ADJUST MY NEBEL WITH THE ORIGINAL, AND USED SAMPLING FOR SAME THE VIEW



I DID A BRAID PATTERN WITH SPLINES
I USED PATHDEFORM TO HAVE THE CURVE



ADD THE BRAID IN ZEPHYRUS AND BRUSHED THE HAIR IN ZEPHYRUS

I WORKED IN MAY TO MAKE THE BRID, WHY BECAUSE I WANT TO CREATE A BRID LIKE IN THE REAL LIFE AND I HAVE MORE CONTROL WITH THE SPLINES TO DO THAT



MAKE TUFFS FROM THE BASIC HAIR AND EXTRACT

ADD LINES TO HAIR FEELING



TO CREATE MORE HAIR FEELING I DUPLICATED SOME TUFFS AND USED PINCH + MOVE BRUSHES TO HAVE LITTLE TUFFS



I DID A EXTRACT FROM THE BUSH AND REPLICATED SOME FOLDS WITH STANDARD BRUSH

I TOOK MY SHIRT DRESS AND I BRINGING IT INTO MAY TO DO THE FOLLOWING, SELECT ALL THE FACES AND DO A EXTRUDE UP FOLLOW, INNER SELECTOR AND DELETE, AFTER THAT I ADDED A BRUSH MIRROR, AFTER IN ZEPHYRUS I ADDED A DIVISION TO HAVE MORE BOUNDED SHAPES, I DID THE SAME FOR THE DRESS BUT HERE IN ZEPHYRUS I MOVED THE SQUARES TO HAVE THE SAME FEEL THAN THE ORIGINAL



HERE IS THE BREAKDOWN FOR THE MATERIALS, COLORS, POLYPAINT AND RENDER I USED TO CREATE THIS PICTURE, ALSO I WANT TO SAY FOR MY MOST IMPORTANT LISTENER "LET IT GO" IS A INFINITE LOOP WHEN I WAS WORKING ON IT!!

ABOUT THE AWESOME FABRIOUS SKIN MATERIAL AND THE AMAZING ZANE'S EYE MATERIAL I USED, YOU CAN DOWNLOAD HERE:

FABRIOUS SKIN MATERIAL: <http://www.renderosity.com>

ZANE'S EYE MATERIAL: <http://www.renderosity.com>

THANK YOU VERY MUCH!!!, I'M VERY GLAD TO SEE THAT YOU LIKED MY WORK & MORE YOU ENJOY THIS TUTORIAL AS I ENJOYED CREATING THIS PAN ART



FABRIOUS SKIN MATERIAL



RENDERED WITH MAYA 2012

BRIDEL SILVER FEEL BRIGHT



ICE SILVER FEEL BRIGHT WITH HAIR



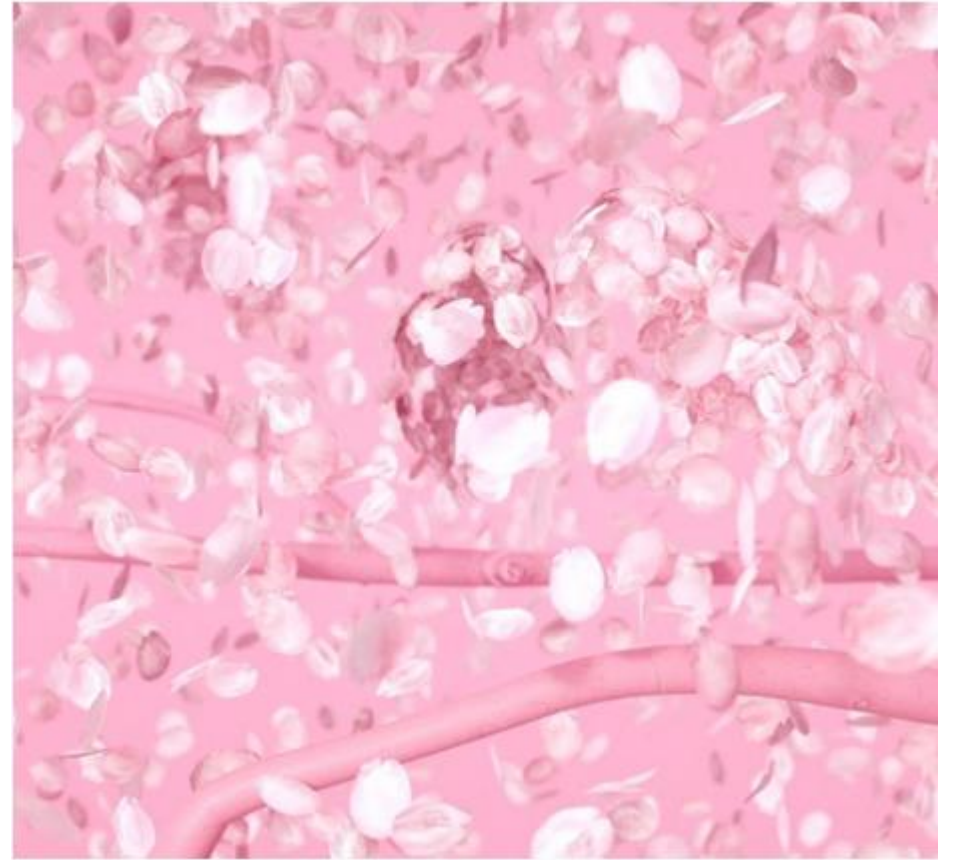
BRIDEL ICE SILVER FEEL



BASE: K_BEEF HAIRCAP



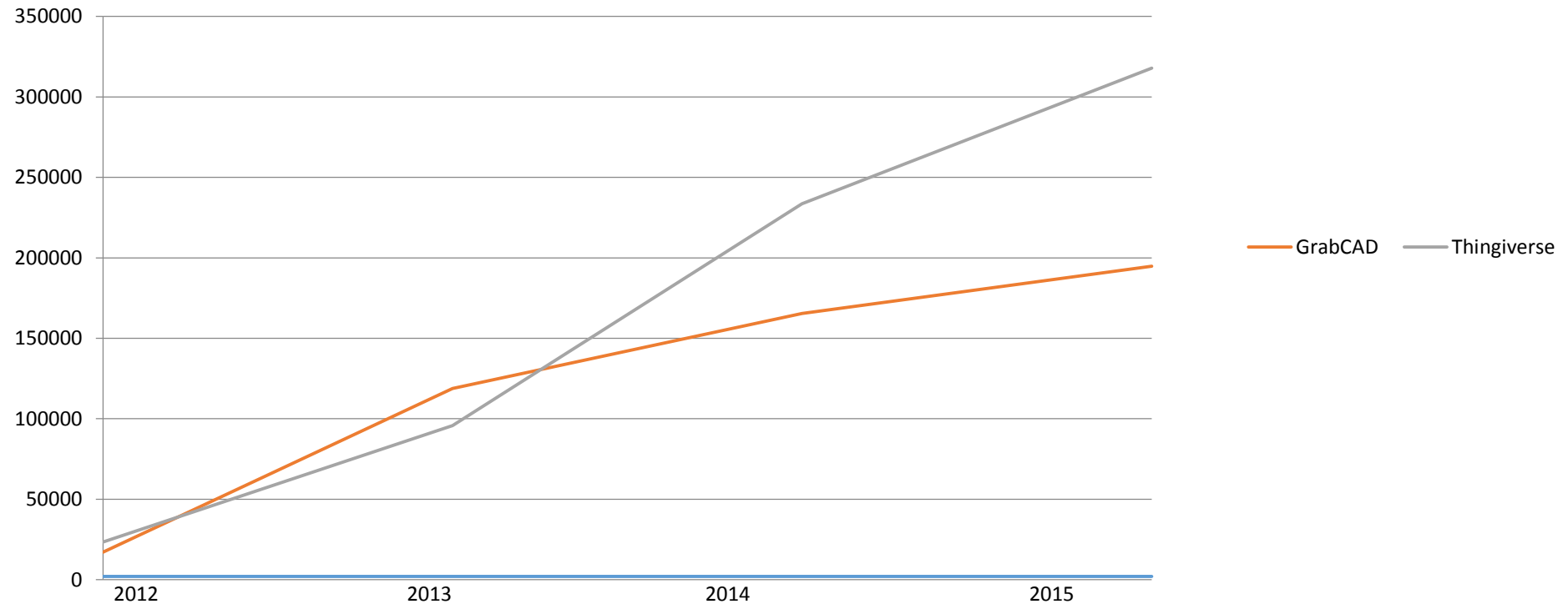
ZEITGUISSED



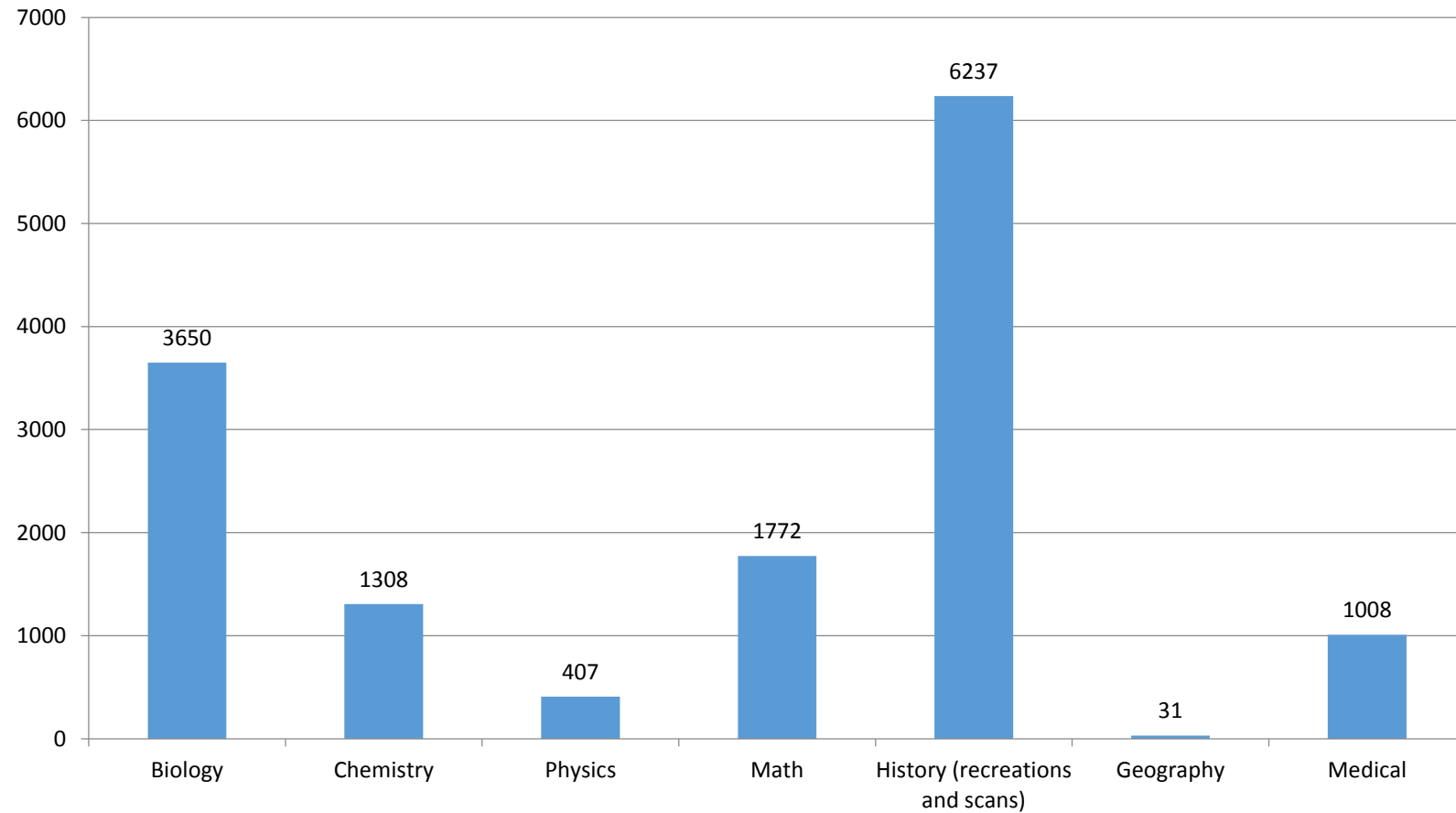
5 Million 3D printable models

- Varying quality
- Many CAD models are easily converted to a 3D printable format
- For animation-related models this is more difficult

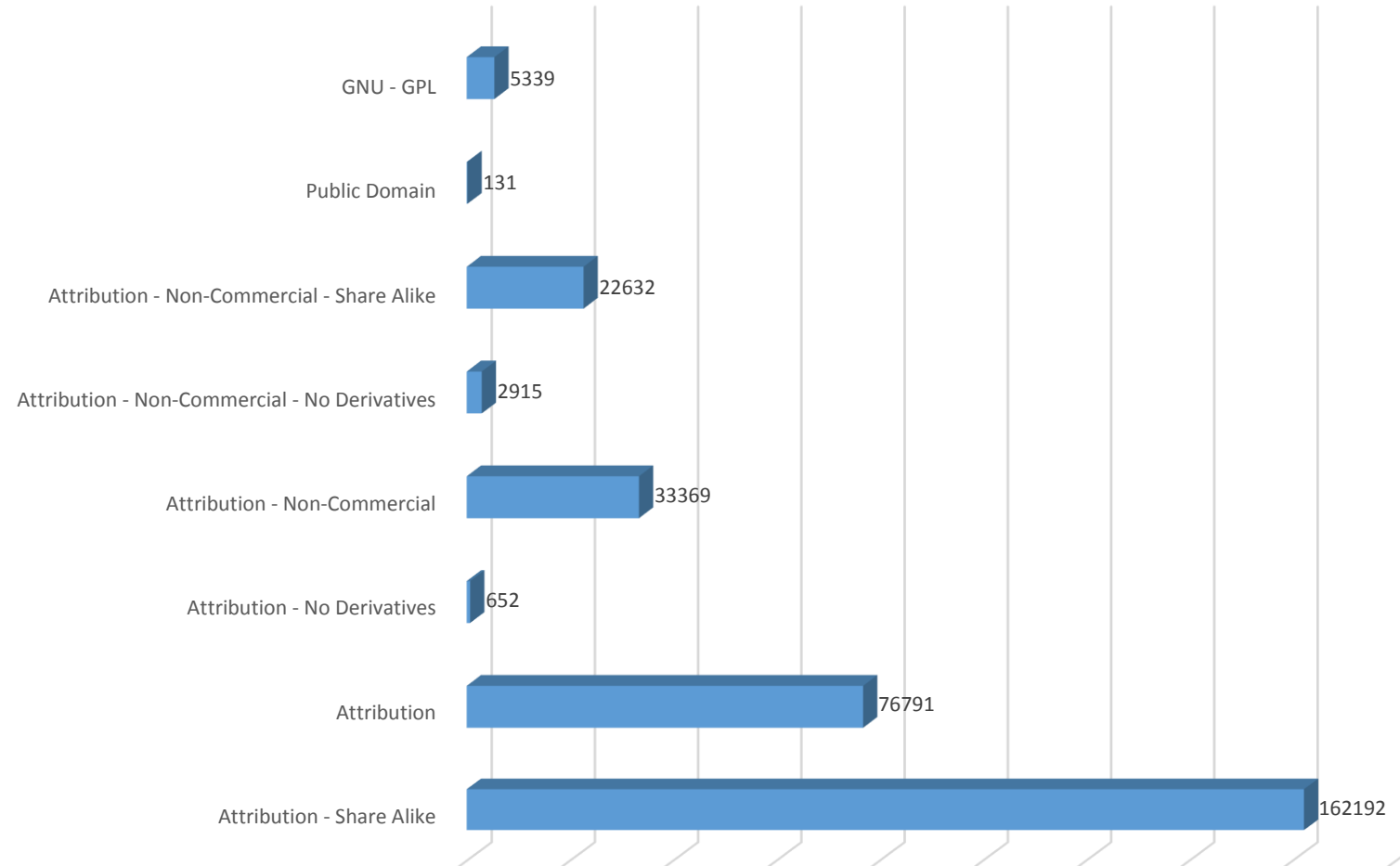
Growth of Thingiverse and GrabCAD Collections



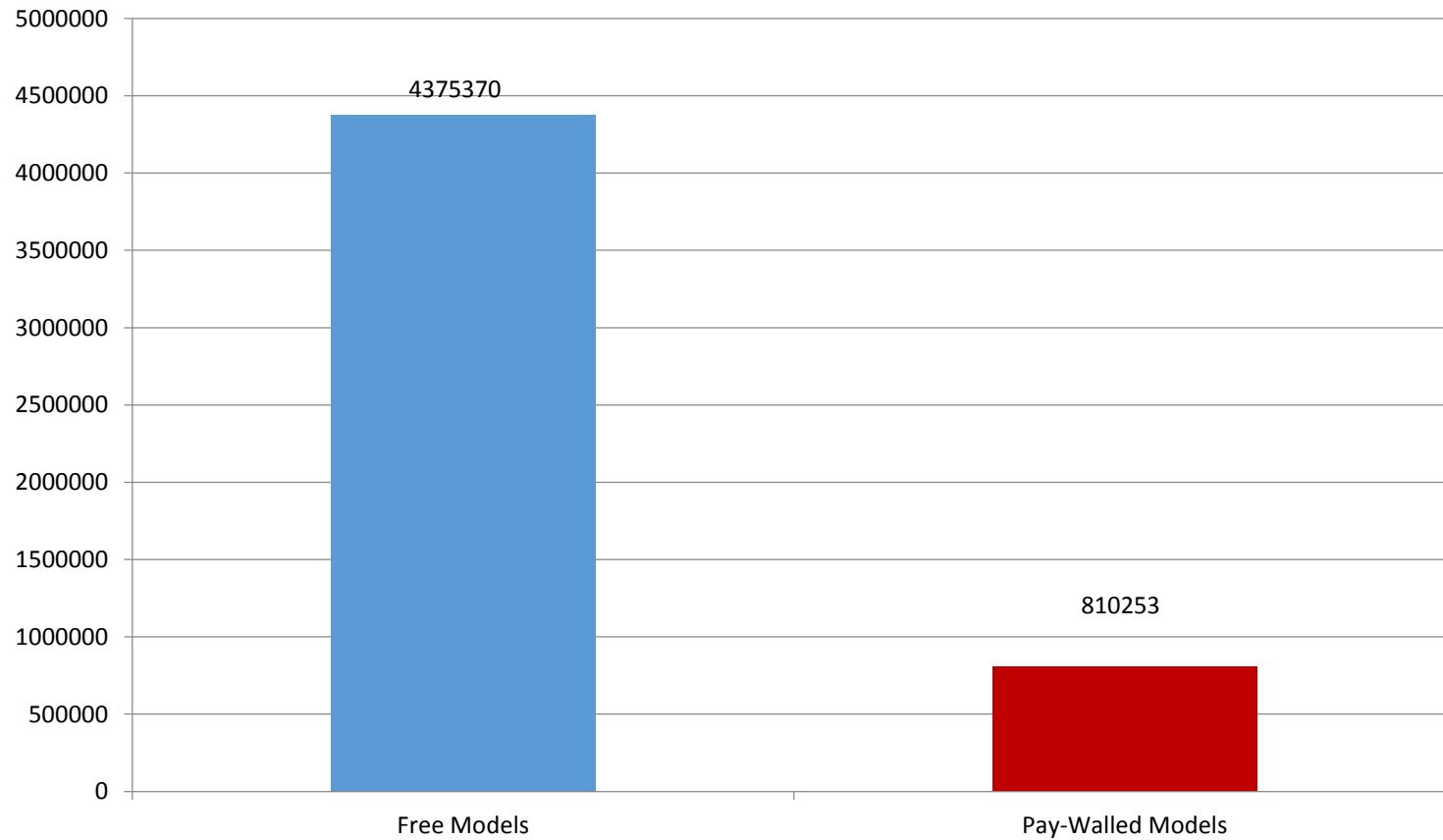
Educational Discipline Breakdown

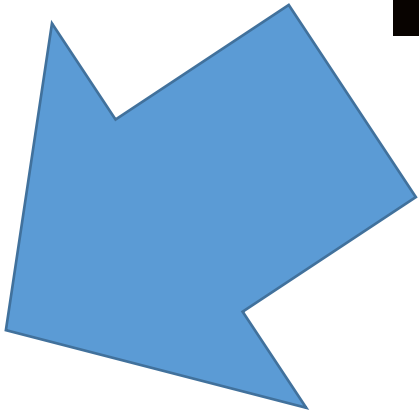
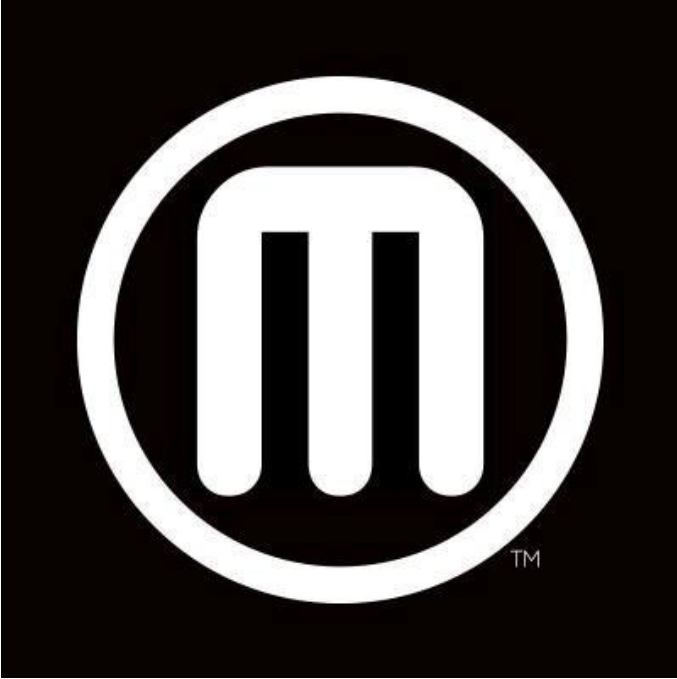
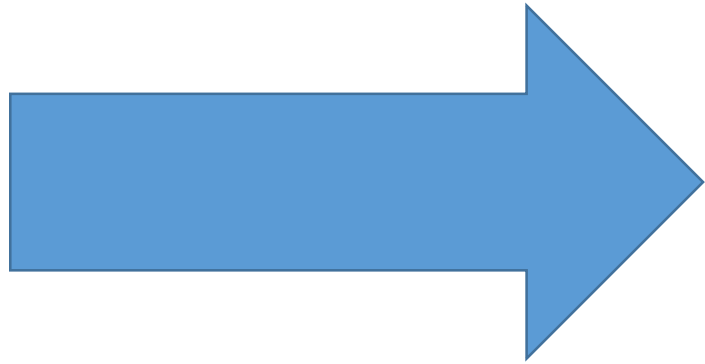


Licensing Breakdown

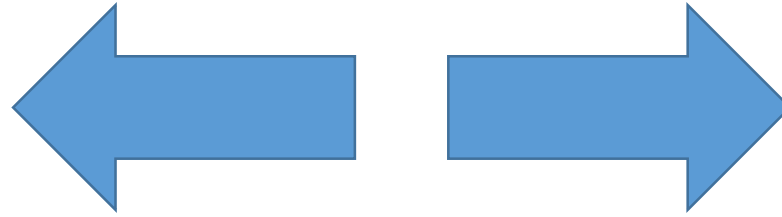


3D Printable Models

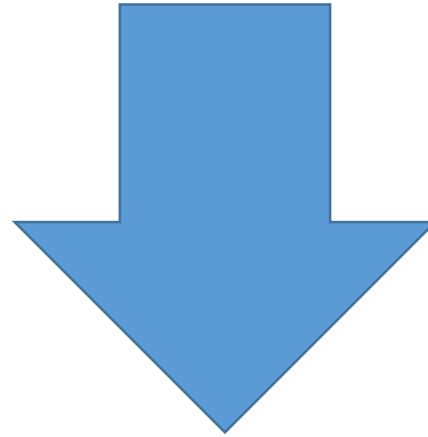




MakerBot
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emerald®
cultural institute

A circular logo with a stylized, multi-lobed design in a golden-brown color, positioned to the right of the text.

Should we be archiving these 3D models?

Preservation Challenges

- File formats
- Large file sizes
- Complicated technology
- Unclear user base

Questions?