



‘Makerspaces’: should South Africa join the hype?

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Makerspace



A **hackerspace** (also referred to as a **hacklab**, **makerspace** or **hackspace**) is a community-operated workspace where people with common interests, often in computers, machining, technology, science, digital art or electronic art, can meet, socialize and collaborate

<http://en.wikipedia.org/wiki/Hackerspace>

<http://makerspace.com/>



MAKE ALL THE
LIBRARY A



Makerspaces & 3D printing

- Shift from students as consumers to **students as creators** (Horizon report, 2014)
 - Campus libraries increasingly host not only makerspaces, but also other services that support creativity and production, such **as video equipment loans and studios, digitizing facilities, and publication services.**
 - Key technology: 3D printing

Digital industrial revolution: 3D printing's impact on manufacturing and bio-printing (Gartner Top Predictions 2014)

- 3D printing, 3D manufacturing and 3D production will change the very nature of business and/or even the **structure of industries**, e.g. China
- 3D printing (will have an effect) on our health as **bio-printing** becomes more practical
- Will have huge impact on IP (intellectual property)

A black and white photograph showing several hands working with 3D printed parts. In the foreground, a hand holds a small, white, cylindrical component. Another hand is positioned to insert it into a larger, white, rectangular component with a slot. In the background, another hand holds a similar rectangular component. The image is heavily edited, with a dark, high-contrast background.

Heavily edited

Academic Library as Makerspace: 3D Printing and Knowledge Creation

<http://www.slideshare.net/klray/academic-libraries-as-makerspace-3d-printing-at-and-3-d-printing-public>

Kathlin L. Ray

University of Nevada, Reno

Photo by Nick Crowl: http://www.flickr.com/photos/dstl_unr/

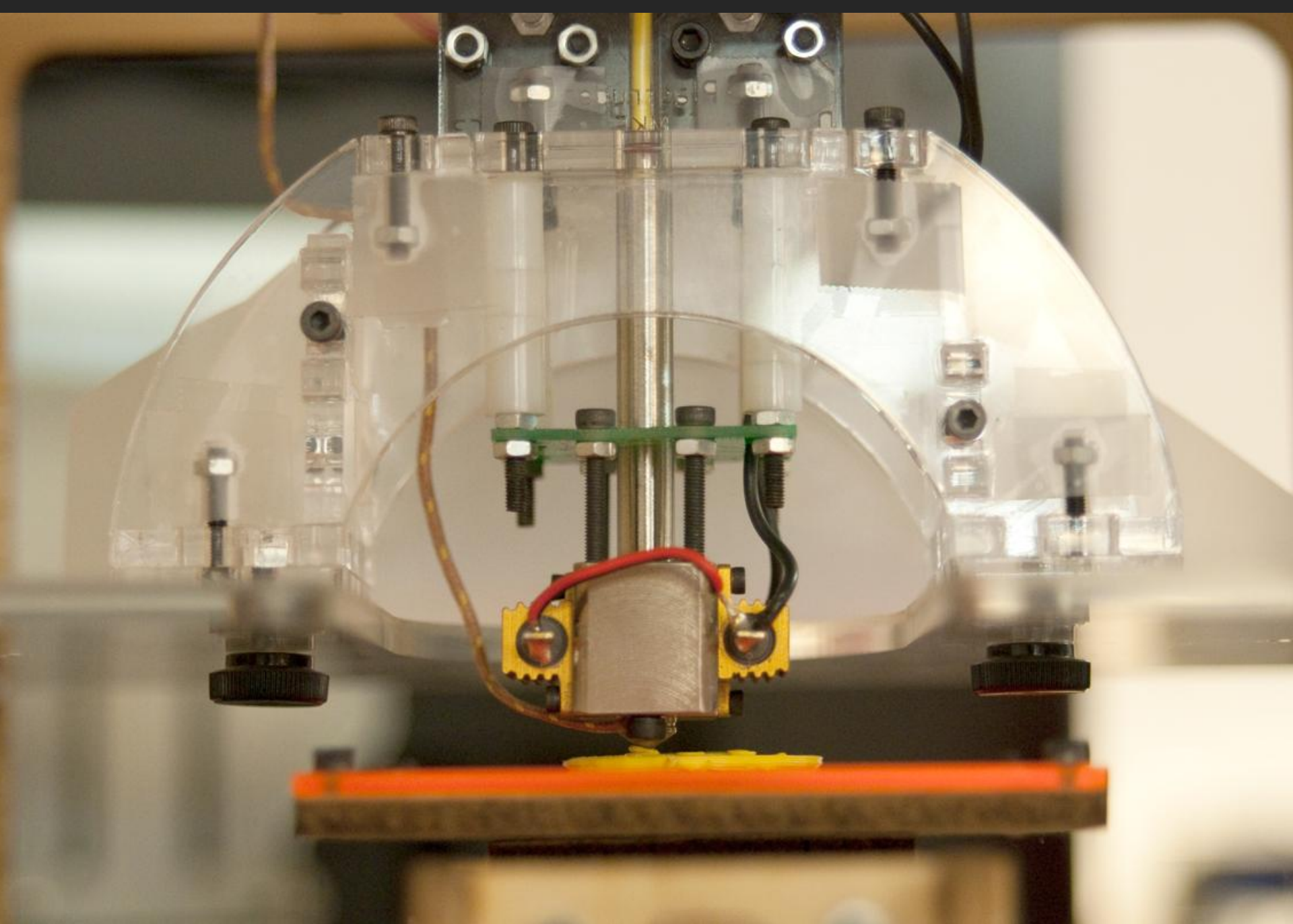
What is 3D printing?

Additive manufacturing or 3D printing is a process of making three dimensional solid objects from a digital model.

3D printing is achieved using *additive processes*, where an object is created by **laying down successive layers of material.**

Examples of 3D objects





“New knowledge, applied to existing tasks, results in increased productivity; new knowledge applied to new challenges and tasks is fundamental to innovation.”

Who uses it and why?

Ben King, chemistry

“one of the very hard things about teaching chemistry is explaining that molecules have shape. This basically removes that obstacle ... so it will change how we teach chemistry and how we look at molecules on a daily basis. It's also just plain fun.”

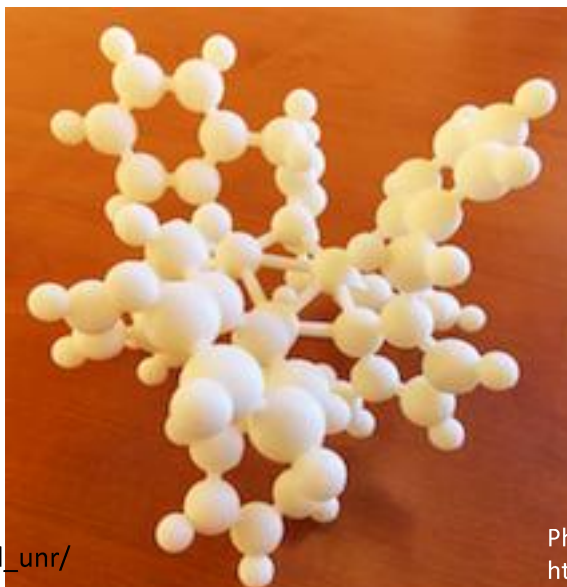
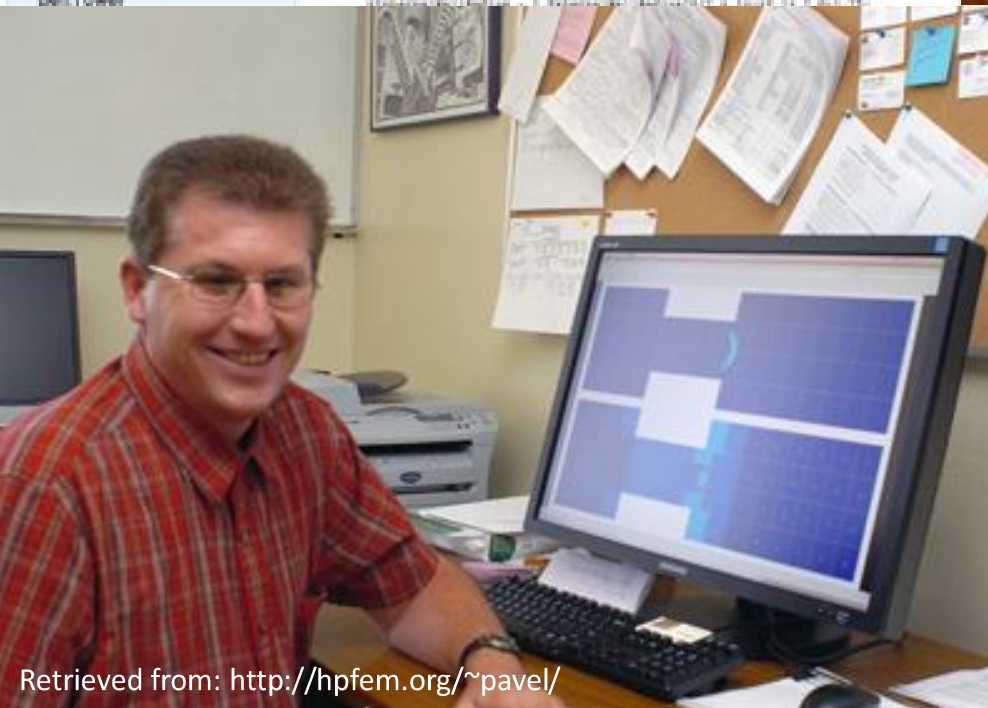
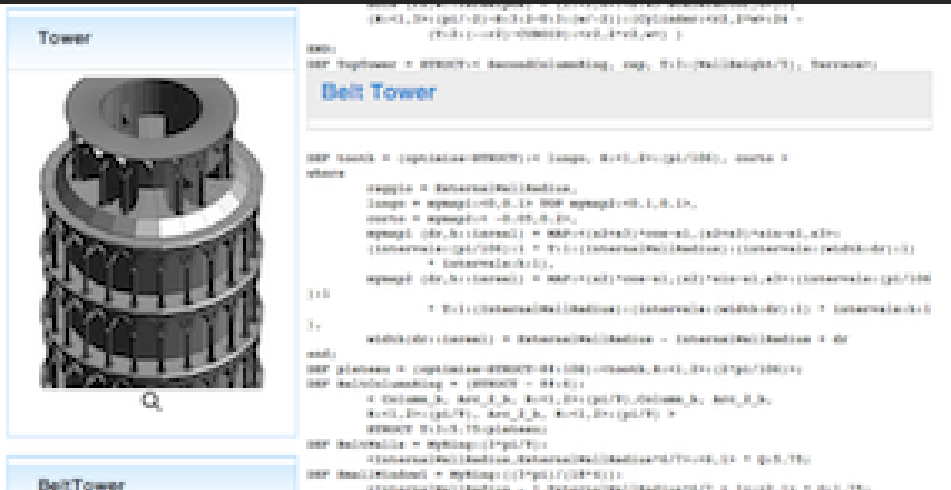


Photo by Tod Colegrove:
http://www.flickr.com/photos/dstl_unr/

Photo of King by Jason Hildago from Engadget:
<http://www.engadget.com/2012/10/19/reshaping-universities-through-3d-printing/>

Pavel Solin, applied mathematics

Online STEM lab: <https://nclab.com/>



PLaSM

Heather, math education + tutor



“I think 3D printing is awesome. Now if I can’t find a [math educational] resource, I can just make one.”



Nick, library staff + photographer



it's okay to fail. expect to.



Chris Anderson, ex editor of *Wired*:

"3D Printing Will Be
Bigger Than The Web"

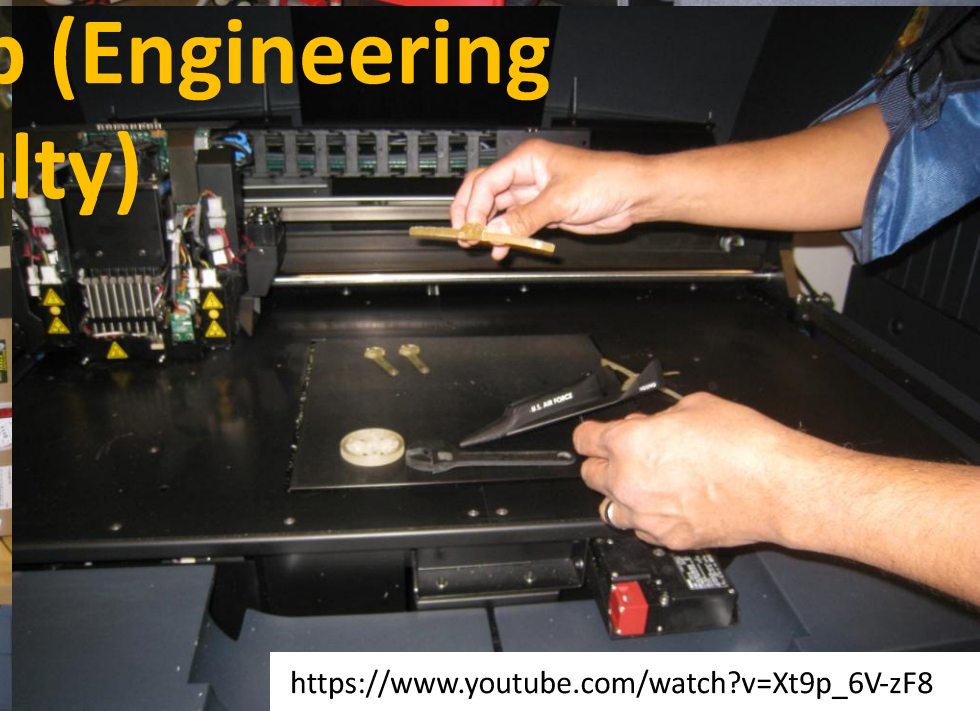




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Purdue University's Artisan and Fabrication Lab (Engineering Faculty)



https://www.youtube.com/watch?v=Xt9p_6V-zF8



MeArm - Build a Small Hackable Robot Arm



Simple Sail Car



Convert Negatives to Digital Photos



How to 3D scan with Skanect



3D Printed Reaction Diffusion Patterns



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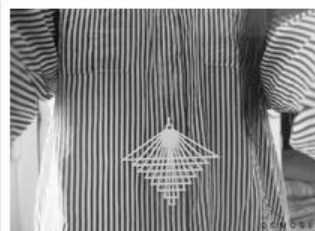
Gadgets

Games

Jewelry



GoPro Hero3 - Frame'ish (new an...
\$13.34 by d3wey



Hindi Pendant
\$33.24 by OSMOSI



Silver Picoroco Ring
\$200.00 by EmergingObjects

Dutch architects to build world's first 3D printed house



Three large building blocks have already been printed using the custom built "KamerMaker" machine. They will eventually be joined together to form a 13 room canal house.



An artists impression of what the final house will look like when completed. The entire project is expected to take three years to build.

Why in the library?

- The only neutral place on campus?
- Accessible to all the faculties
- Interaction by people of different backgrounds
- Part of the goal to make the library 'your platform for innovation'
- Will give the library a huge image boost: from read to create / passive to active
- Not only 3D printing; could include other types of makerspaces

Should we join
the hype?