Who am I?

My name is Wojtek
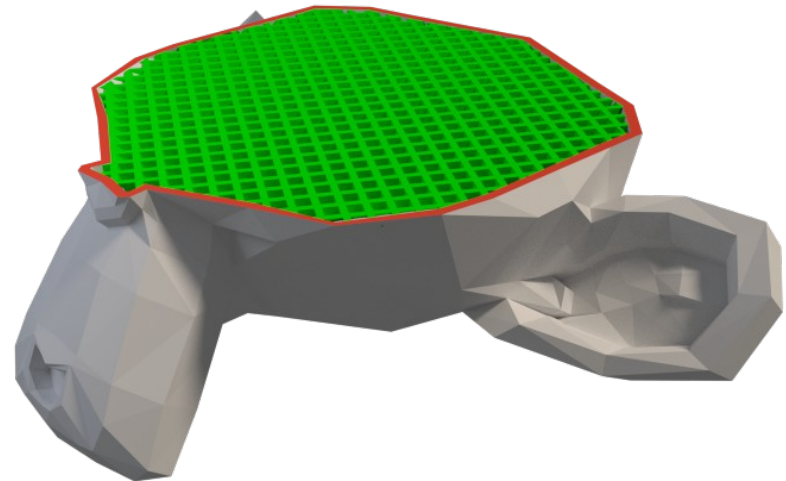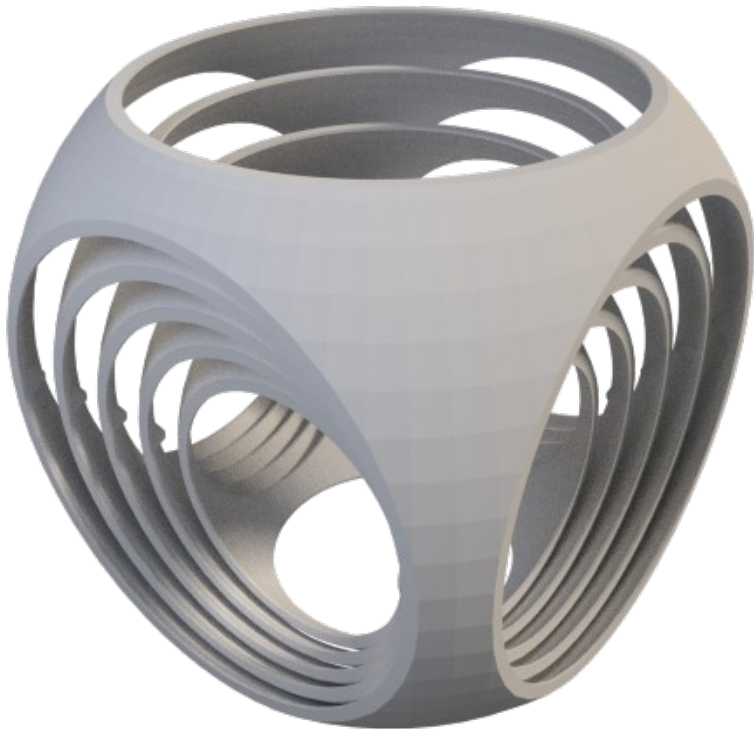
[ˈvɔiʧɛk]

3D Generalist and **3D Printing** enthusiast
F/LOSS software user

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What is 3D Printing?

- Additive method of manufacturing

- This allows complex structures which are not achievable by traditional manufacturing.

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Types of machines

FDM   SLA   SLS

and Jetting?

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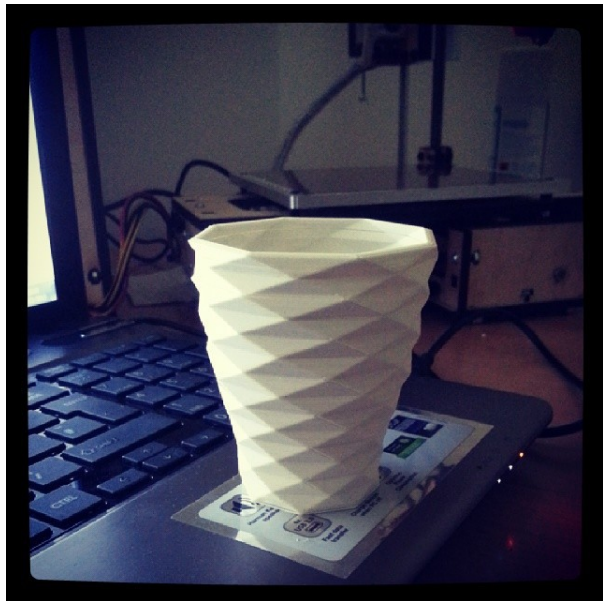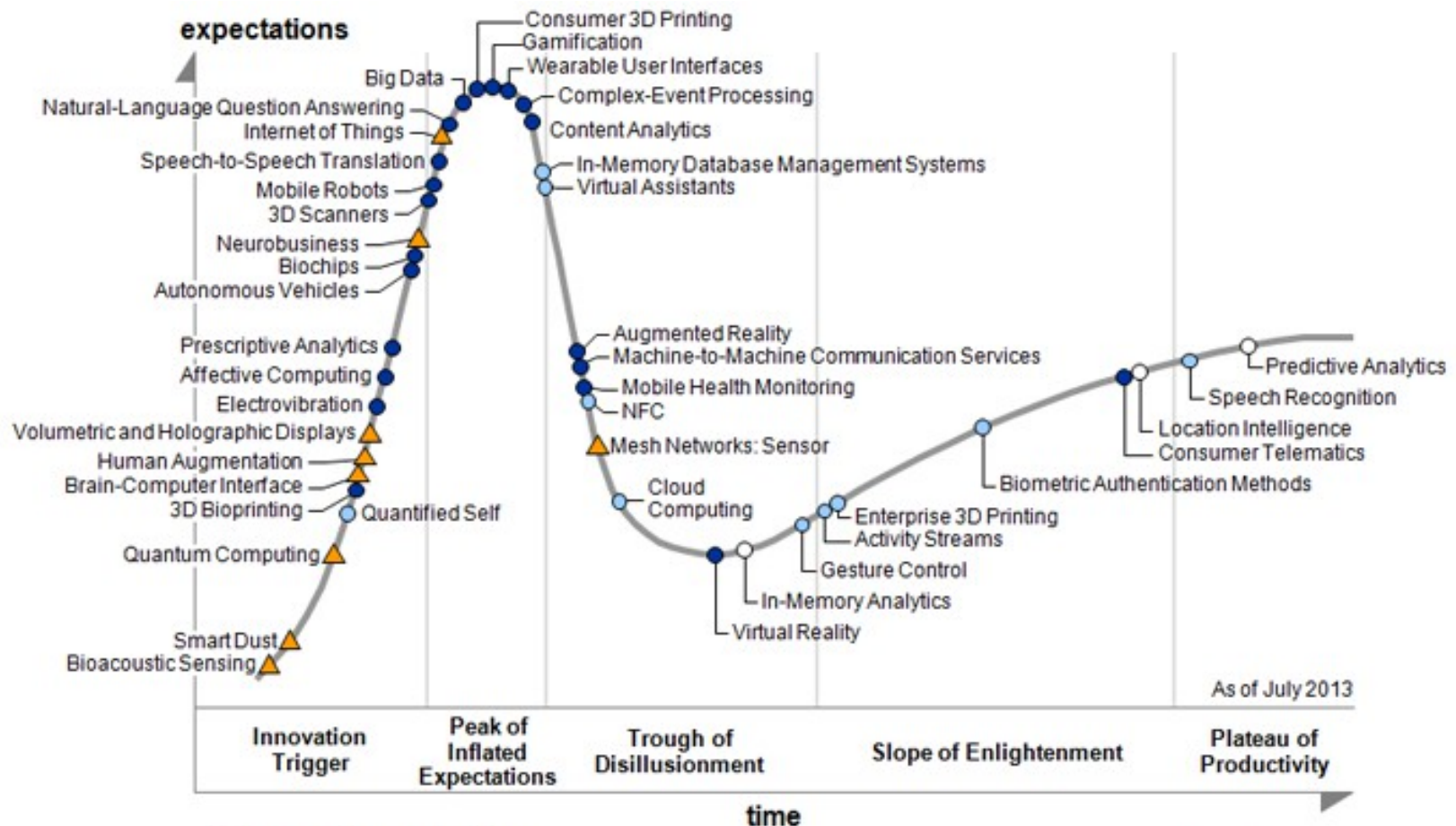
History and uses

- First patent in 1984 (Chuck Hull of 3D Systems)

- Applications (Medicine, Aerospace Industry, Product Design, Art)

- 3D Printing vs Additive Manufacturing

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Gartner's Hype Cycle

Pros and Cons
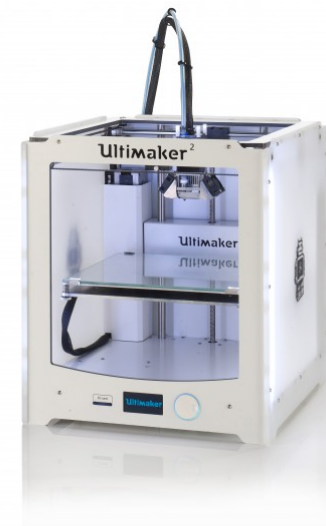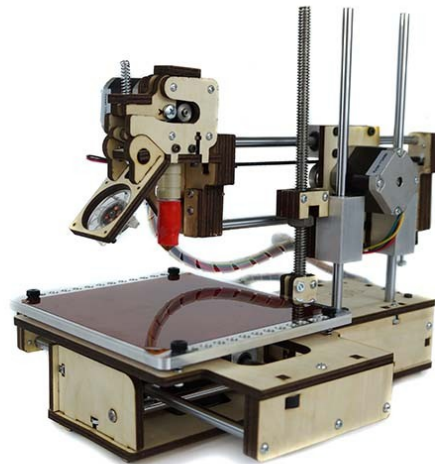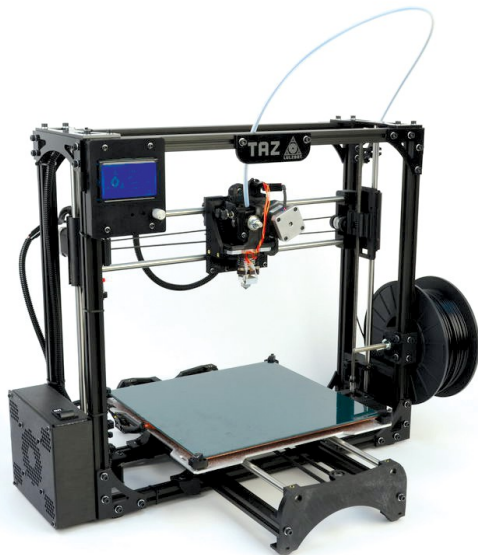
+ Technology improving = rise in possibilities

+ Waste free, PLA is biodegradable

+ Faster than molds + traditional manufacturing

+ Freedom of creation

+ Great community

- Speed and resolution can be unsatisfactory

- Limited number of materials

- Labour is expensive

- Legal implications not clear

- Not for everyone, requires patience

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Learning curve

Open Source FDM 3D Printers

- Open Source at heart of 3D Printing

- Recent 3D Printing boom was started by hackers/makers (RepRap)

- Some of the popular Open Source 3D Printers are Lulzbot TAZ, RepRap family, Printrbot and Ultimaker.
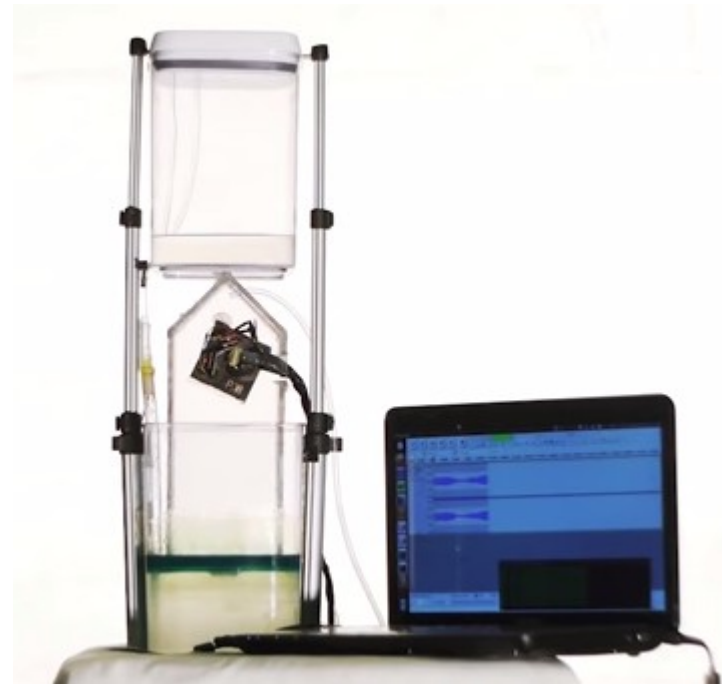
Peachy 3D Printer

Closely tied to Blender to use

- Unorthodox solutions
- Uses microphone
  and headphone jack
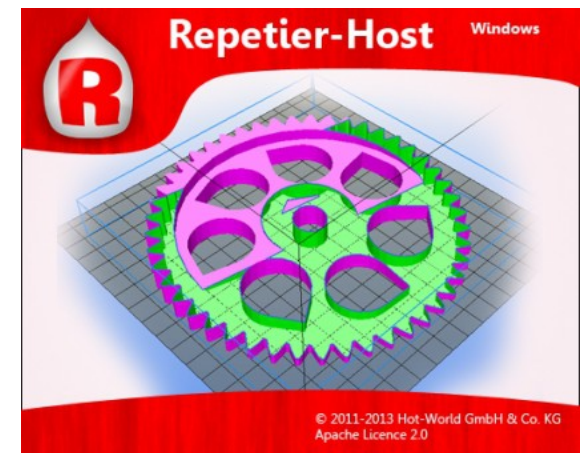 to control the printer
- Closely tied to Blender

Open Source software used for 3DP

- Open Source 3D Printers are Software Agnostic

- Blender + Slic3r + Repetier

F/LOSS 3D Printing Pipeline

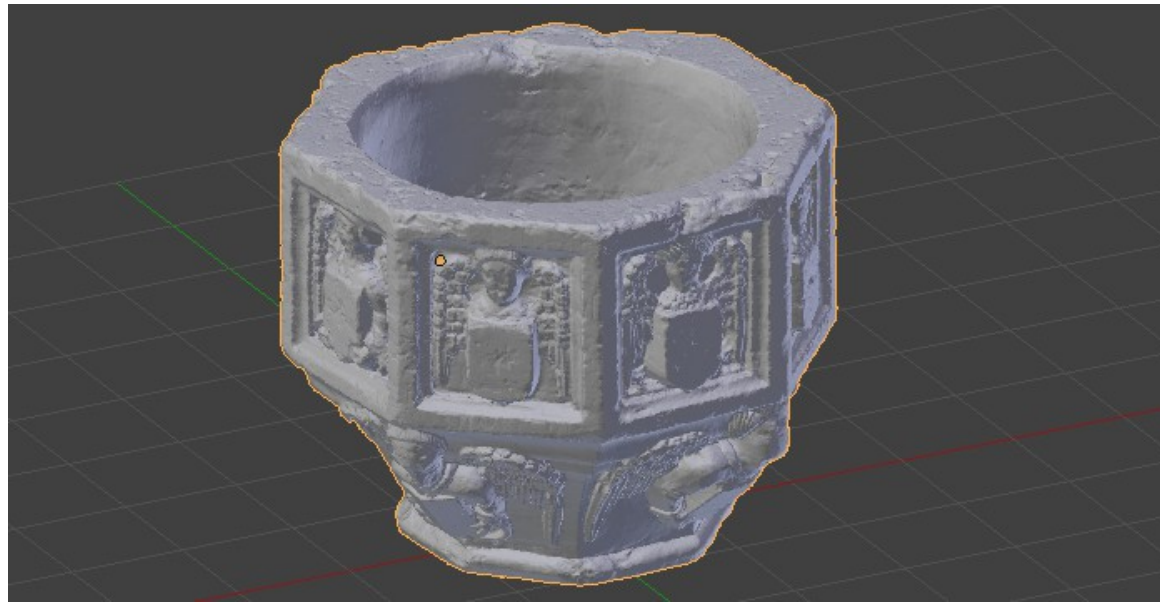- **Design** an object or prepare a **3D scan**

  - Not everything can be printed

- **Slice** using Slic3r to produce gcode

  - Add brim, support and lower speed if necessary

- Use Repetier to **initialize** 3D Printing

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Blender Design Workflow tips

- Manifold/watertide mesh (no holes)

- Overhangs

- Use the right scale **(10b3d units = 1cm in Repetier)**

- Wall thickness

- Model's orientation

- Stick to the grid!

- Use 3D Print Toolkit addon to troubleshoot the most common mistakes

Retopologising

- Dense Mesh = longer slicing times
- Scans are non-manifold, remember to fix mesh
- Decimate, Remesh and Tris to Quads.

Don't own a 3D Printer?

- Hacker spaces pop around
- 3D Hubs

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Thank you!

Danke Schön ! Dank Je Wel! Gracias! Obrigado!
ありがとうございます！谢谢！ Спасибо!
Terima kasih! Teşekkür Ederim! Ευχαριστώ!
Grazie! Merci! Gràcies! Takk! Kiitos! Aitäh!

Tack! Děkuji! Dziękuję! Дзякуй! Дякую! Hvala!
Ďakujem! Ačiū! Paldies! Köszönöm! благодаря!

Mulţumesc! 감사합니다 धन्यवाद شكرا תודה

Any questions? References

- **Ultimaker**: https://www.ultimaker.com/pages/support

  http://wiki.ultimaker.com/Mechanics_build_guide#What_you.27ll_need

- **Printrbot:** http://printrbot.com/tag/open-source/

- **RepRap:** http://reprap.org/wiki/The_incomplete_reprap_beginner%27s_guide

- **LulzBot**: http://download.lulzbot.com/TAZ/

- **The Peachy Printer**: https://www.kickstarter.com/projects/117421627/the-peachy-printer-the-first-100-3d-printer-and-sc

- Many services provide free 3D files: BlendSwap.com, thingiverse.com etc.

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