

Computer Graphics

Lecture 3: Modelling

Kartic Subr

What is a model?

What is a model?

use (a system, procedure, etc.) as an example to follow or imitate.

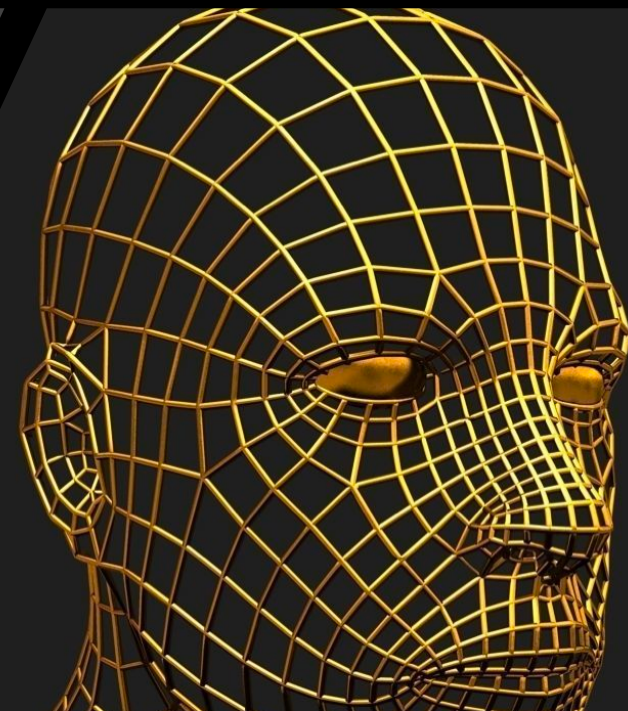
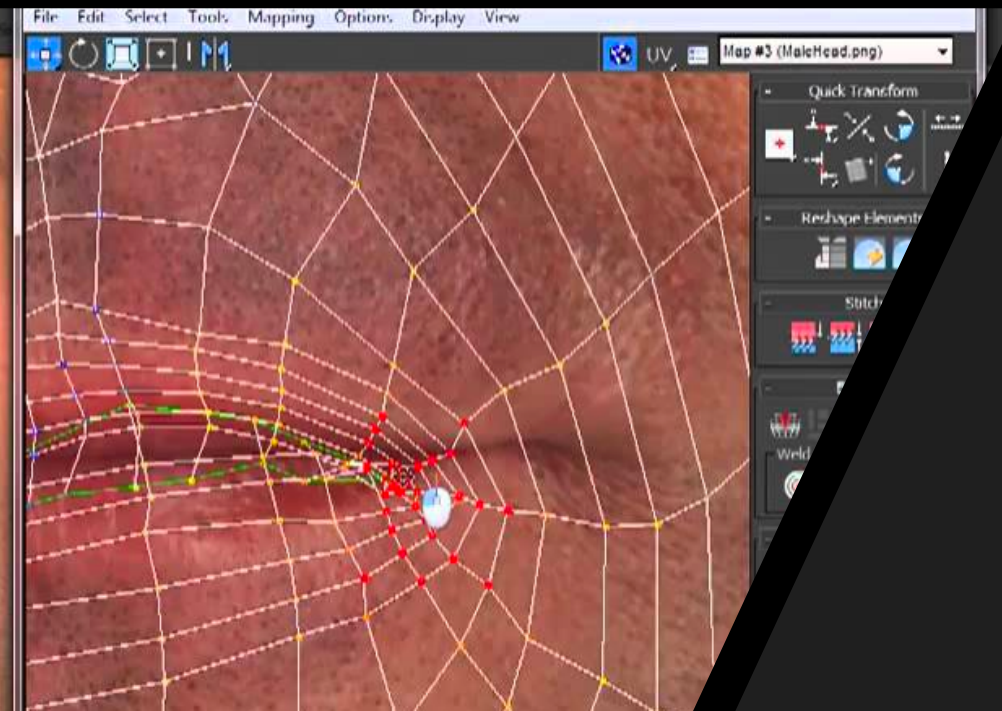
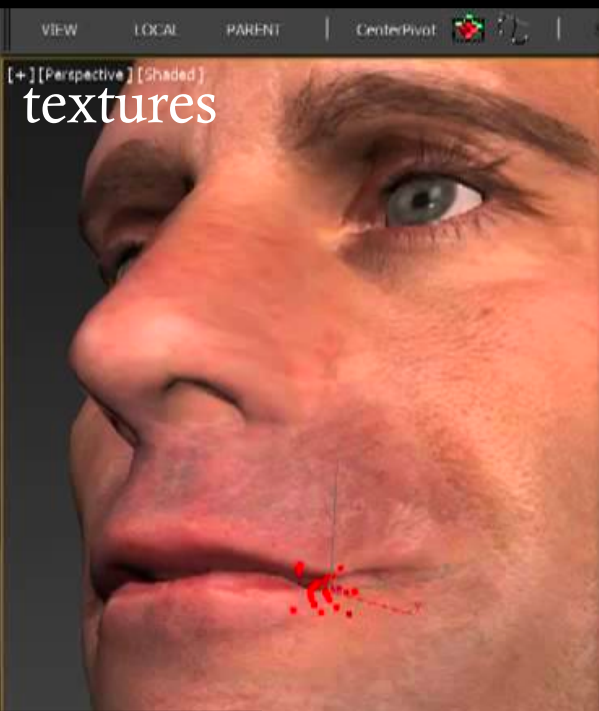
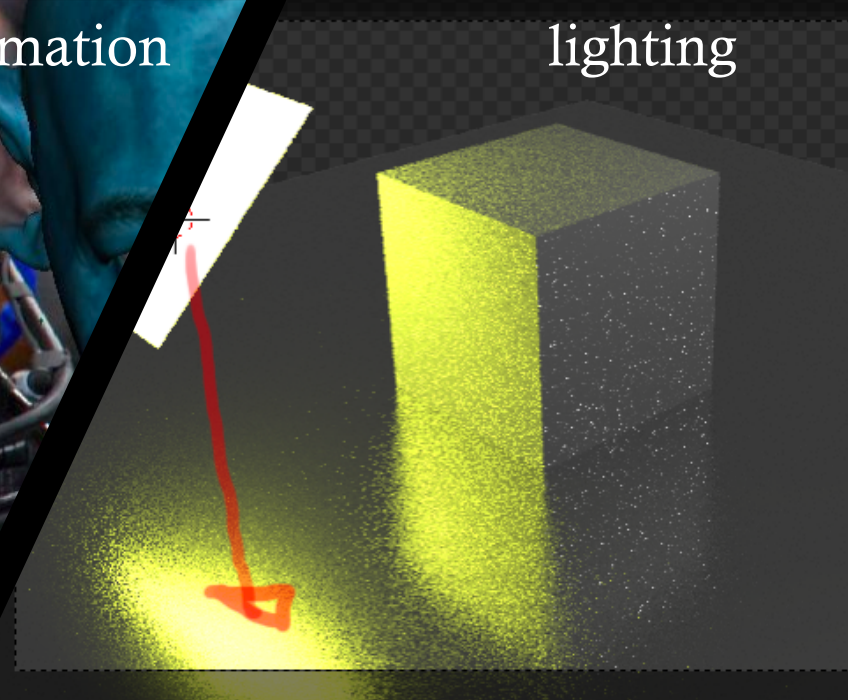
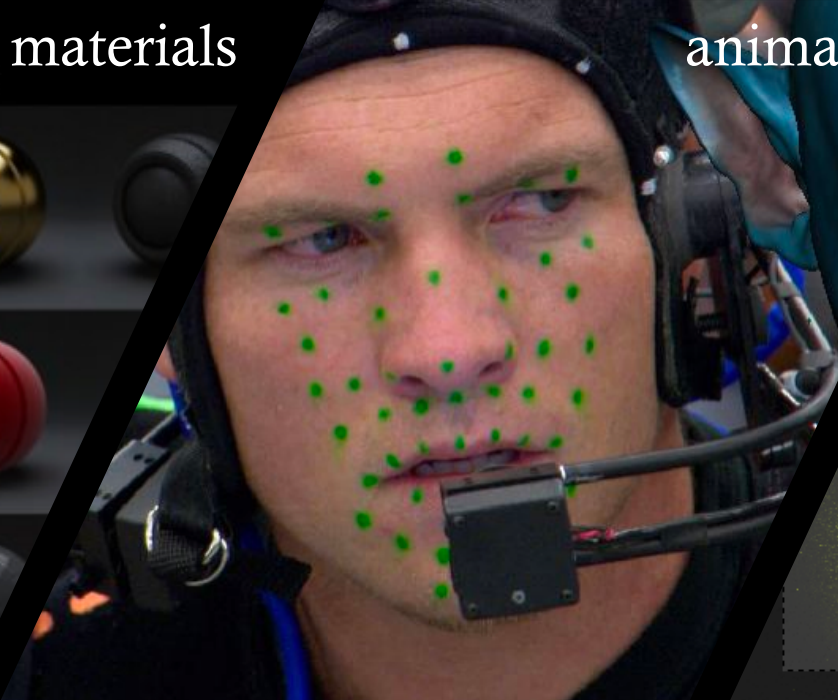


Shader Collection Vol.1
Metal Plastic Ceramic Velvet Rubber Glass Water Beverage

materials

animation

lighting



geometry

Search videos showing 'effects breakdown'

<https://www.youtube.com/watch?v=pTffQIFFYR8>

Approaches to modelling

Artistic creation

maths



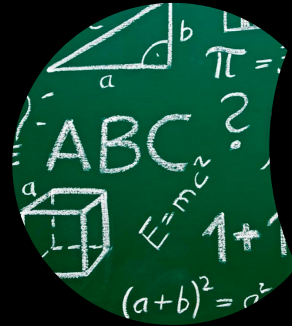
measurement



Approaches to modelling

Artistic creation

maths



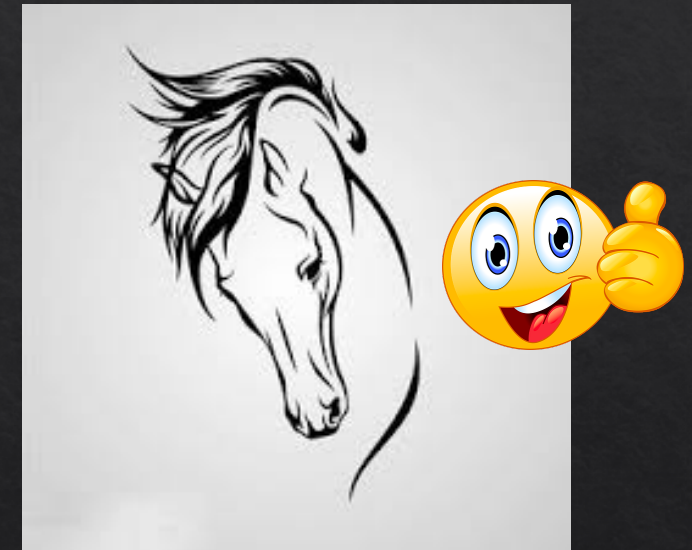
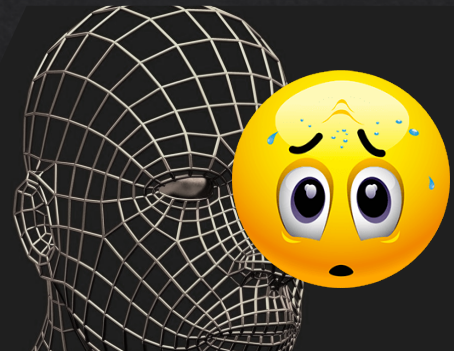
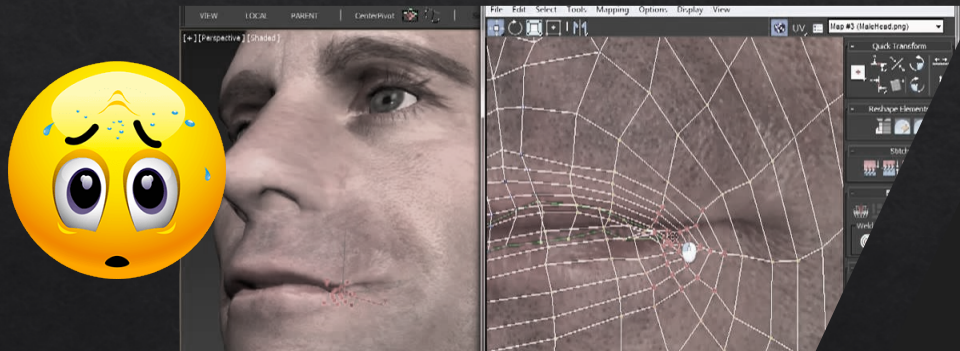
- Use physics
- Repeated procedure
- Analytical shapes (sphere)



measurement

- 3D scan
- Photograph
- Motion capture

manually created models

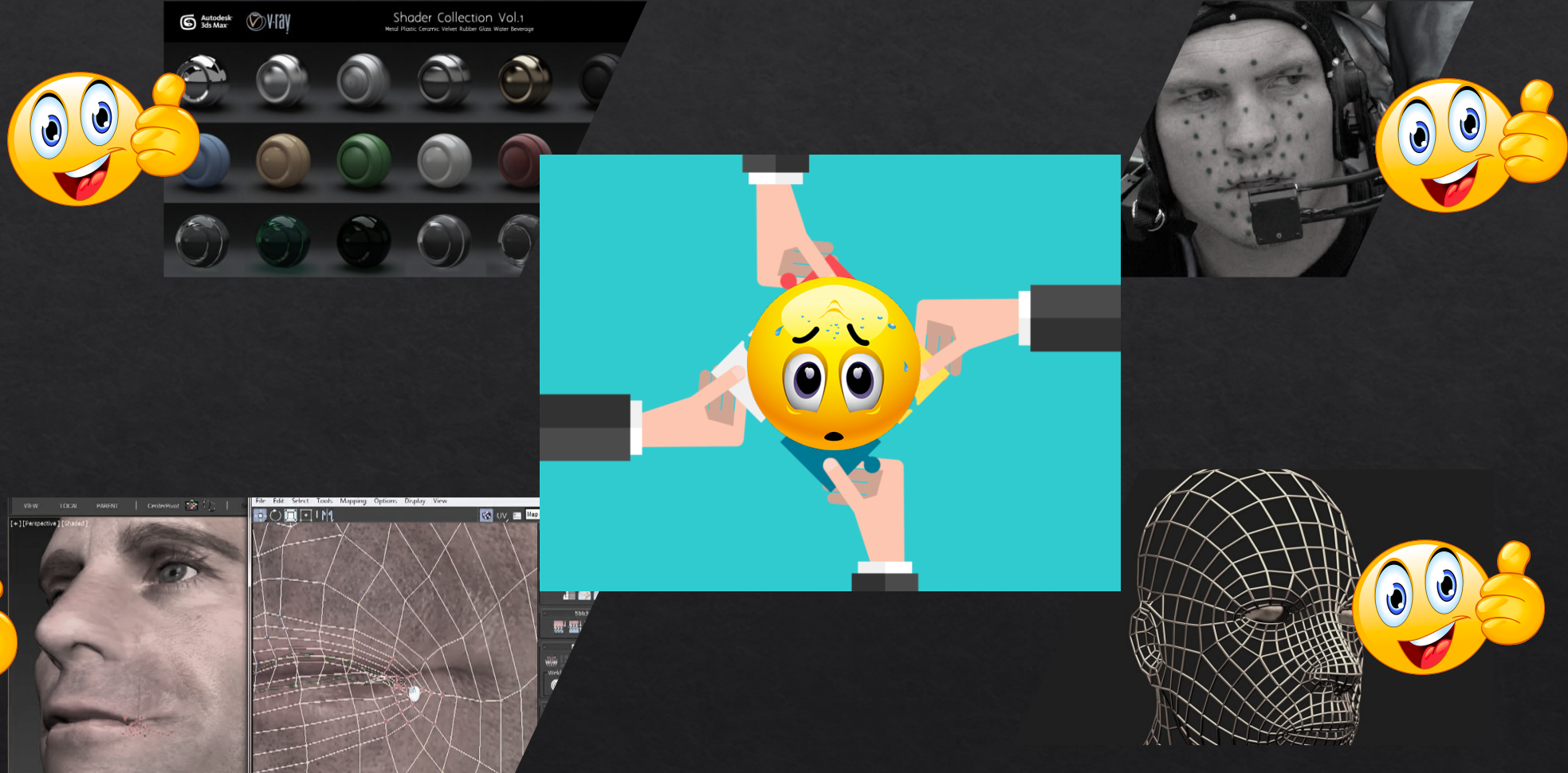


artistic expression

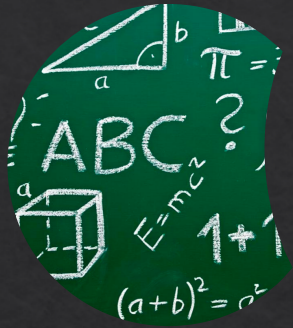




measurement



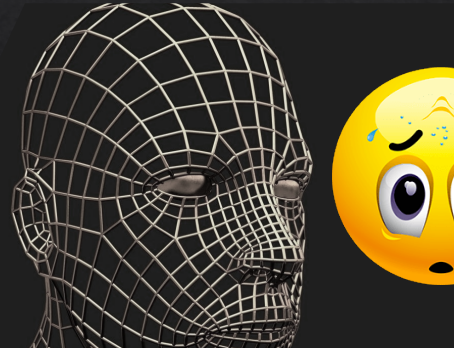
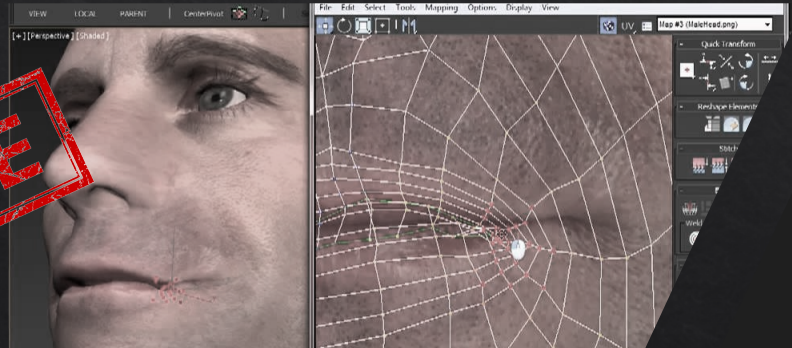




mathematical models



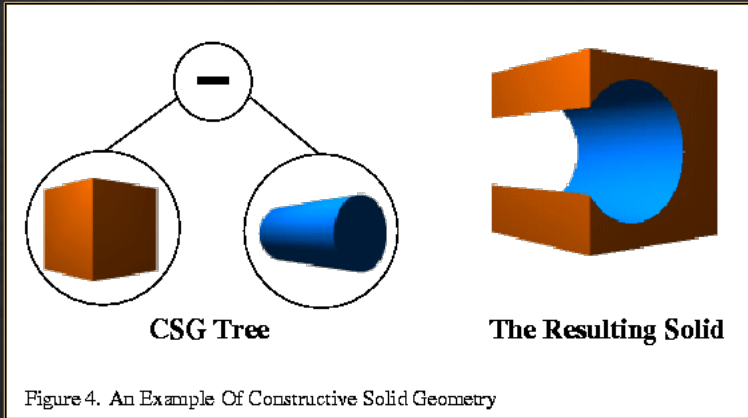
FAKE



3D shape representations

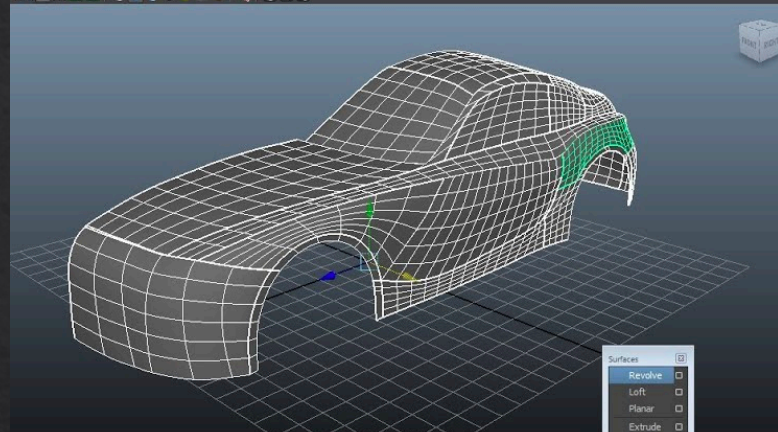
- Implicit representation
- Explicit representations
 - primitives
 - parametric

3D modelling – common approaches



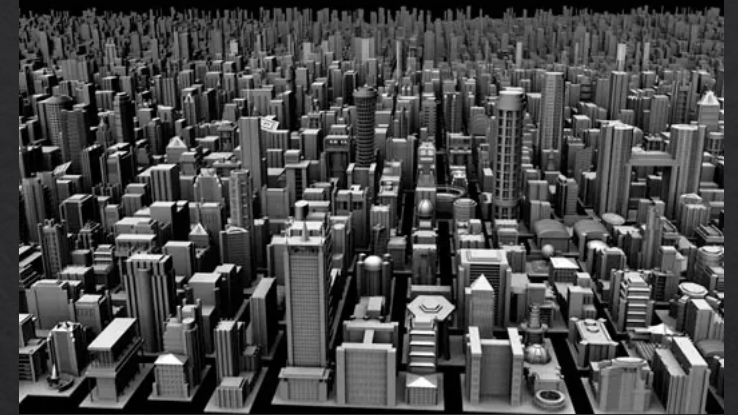
constructive solid geometry

https://www.cs.cmu.edu/~sco-ros/cs15869-s15/lectures/05-CSG_Procedural.pdf



parametric surfaces

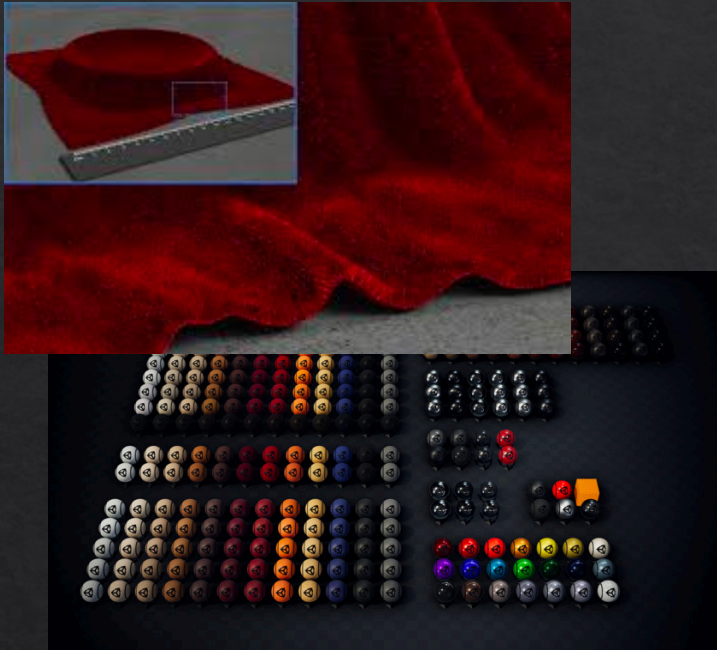
<http://www.inf.ed.ac.uk/teaching/courses/cg/lectures/slides16.pdf>



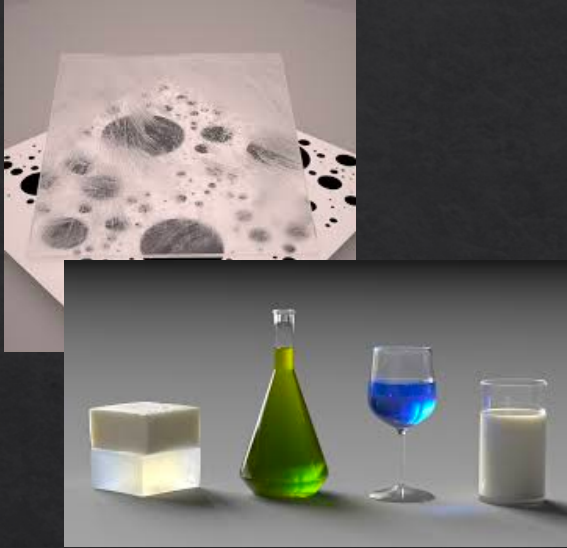
procedural modelling

<https://www.cs.princeton.edu/courses/archive/spring03/cs426/lectures/16-procedural.pdf>

Materials – common approaches



measured



parametric e.g. ggx, bssrdf



procedural modelling

more about this, later in the course ...

Lighting

