



# LES 1A: INTRODUCTIE

DE BASIS VOOR DE HELE CURSUS

# ONDERDELEN

1. Wat is zijn computergraphics en wat is Blender?
2. Hoe werkt Blender?
3. 3D modelleren en modifiers
4. Sculpting
5. Texturing en materialen
6. Camera's en belichting
7. Visuele effecten, particles
8. Animatie
9. Grease Pen en 2D animaties
10. Rendering en nabewerking

## WAT ZIT NIET IN DEZE WORKSHOP?

- Het maken van computergames zelf (Blender heeft geen game engine meer!)
- Het maken van modellen speciaal voor 3D printers



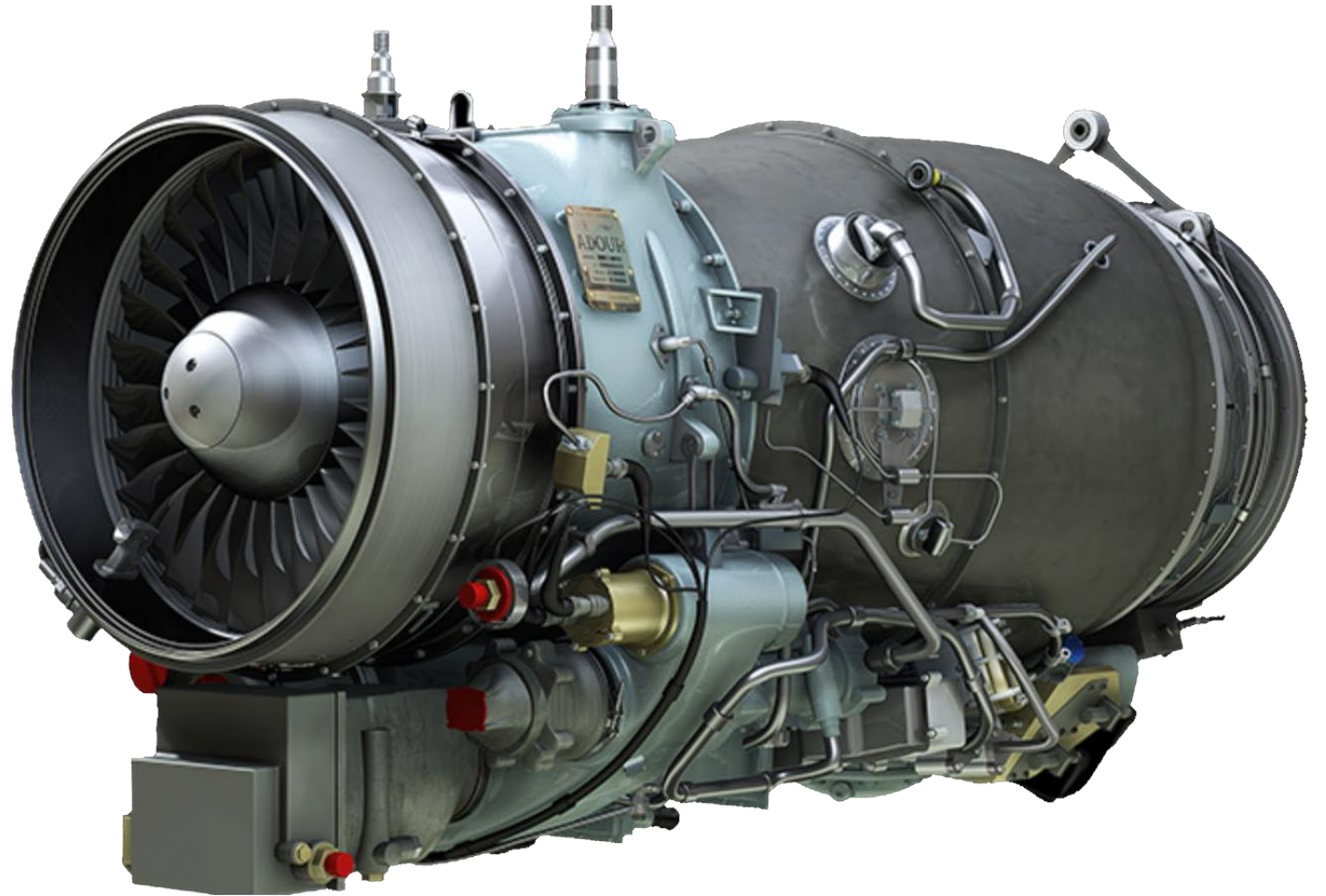
## LES 1B: WAT ZIJN COMPUTERGRAPHICS?

DE BASIS VOOR DE HELE  
CURSUS

# CG OF CGI

COMPUTER GRAPHICS OF  
COMPUTER GRAPHIC IMAGERY

Stilstaande of  
bewegende 2D  
beelden die door  
de computer  
worden  
gegenereerd.

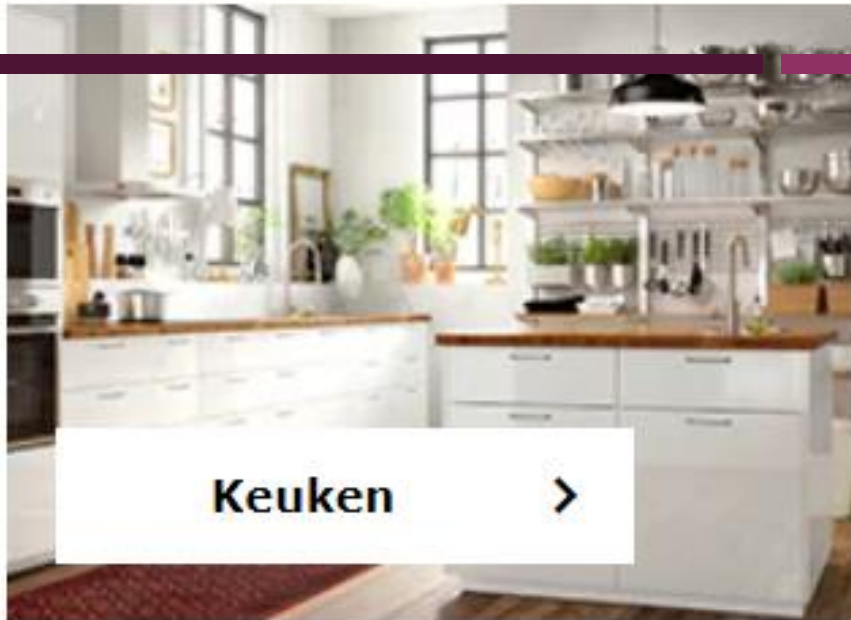




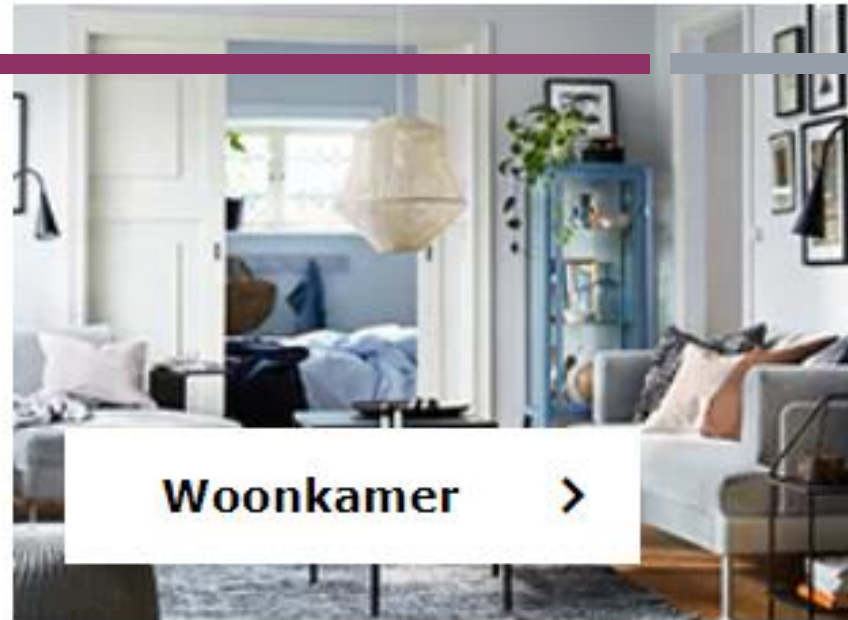
# WAAR KAN JE CGI VOOR GEBRUIKEN?

- Het maken van afbeeldingen
- Het maken van filmpjes
  - VR
  - AR
- Het maken van 3D prints
- Het maken van computergames en mods
- Visuele effecten in films (VFX)

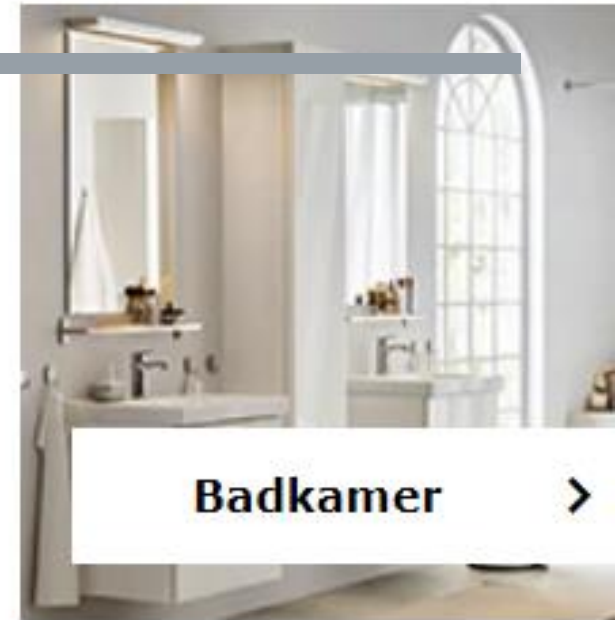




Keuken



Woonkamer



Badkamer



# AFBEELDINGEN

IKEA

Kinderkamer



Eetkamer



Tuin & balkon





# ANIMATIE- FILMS

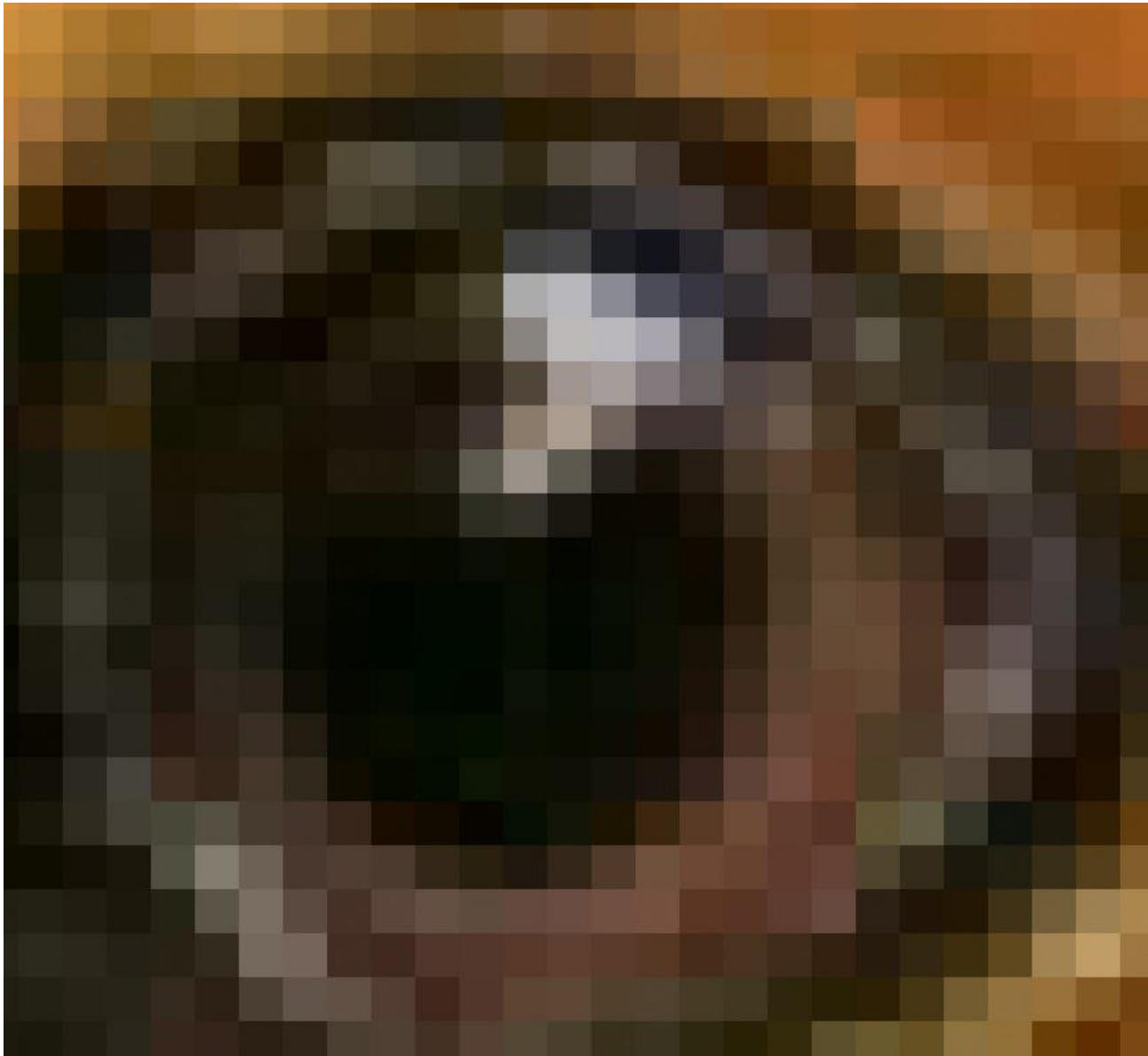
AGENT 327:  
Operation Barbershop

Blender Foundation



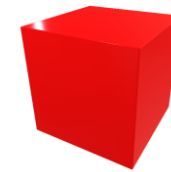


# GAME OF VR ASSETS

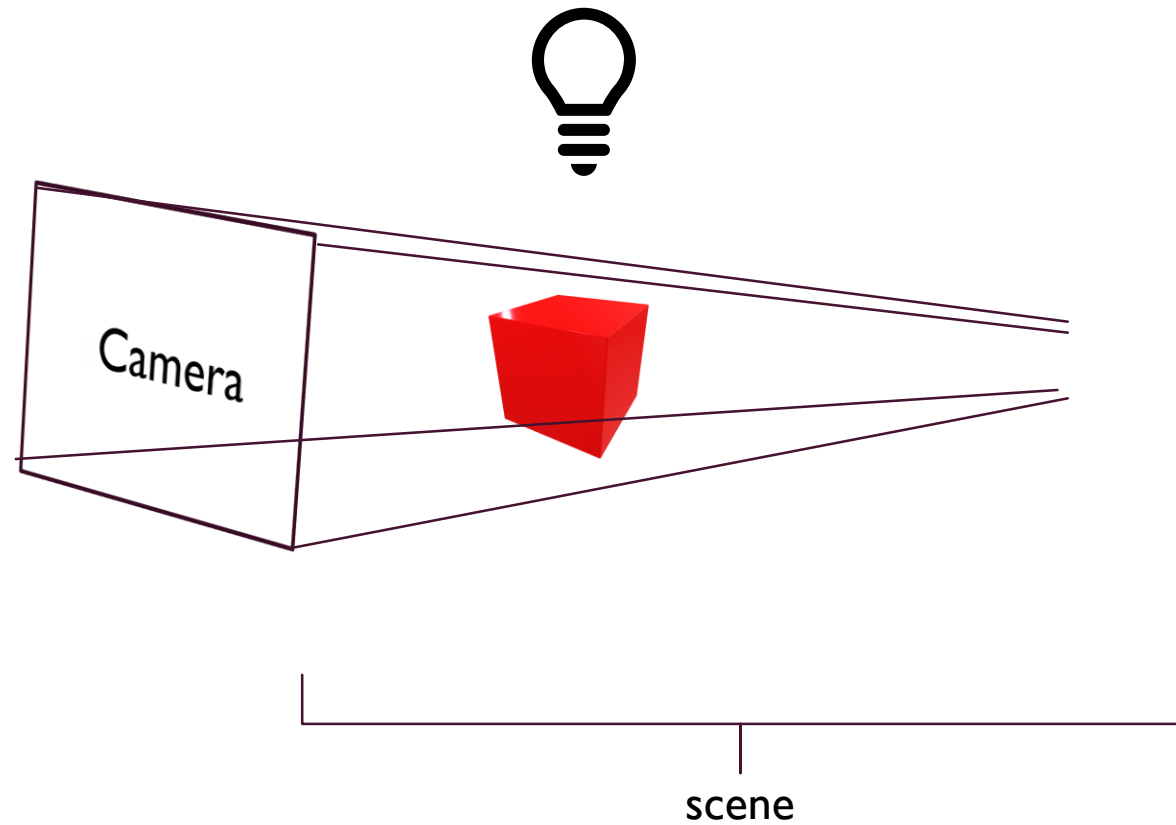


WAT IS HET  
UITEINDELIJKE  
DOEL VAN CGI?

# WAT IS DE BASIS VAN CGI?

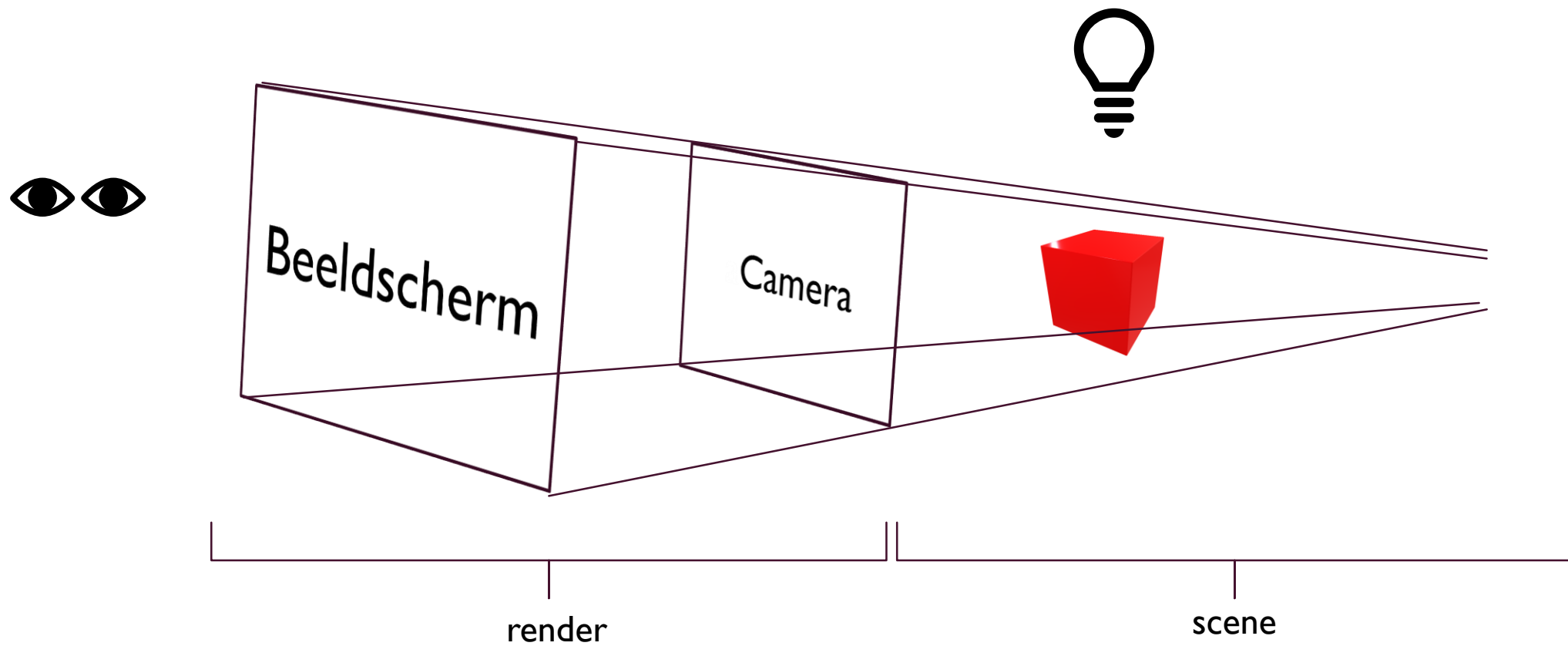


# WAT IS DE BASIS VAN CGI?



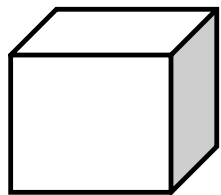


# WAT IS DE BASIS VAN CGI?

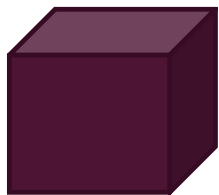


# BASISSTAPPEN OM 3D GRAPHICS TE MAKEN (WORKFLOW)

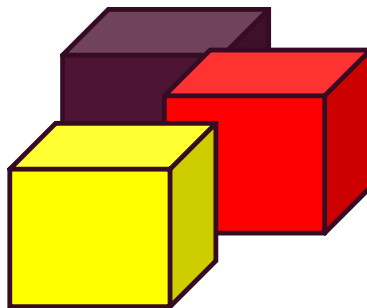
Vorm



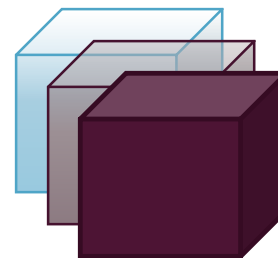
Materiaal



Scene



Animatie



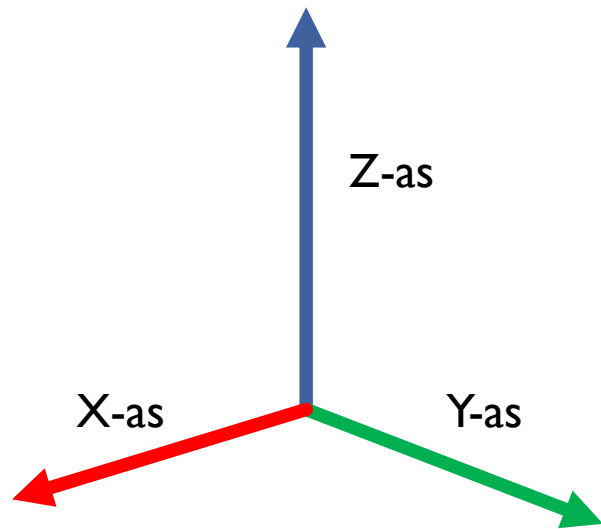
Render



# ONDERDELEN

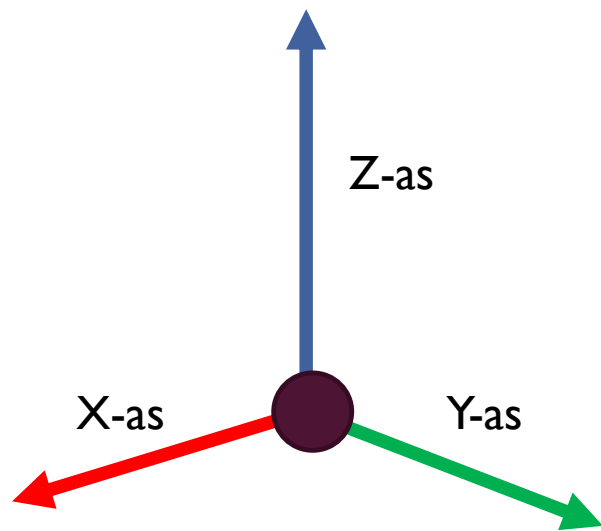
- |     |   |   |
|-----|---|---|
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| 2.  | Hoe werkt Blender?                              |   |
| 3.  | 3D modelleren en modifiers                      | } |
| 4.  | Sculpting                                       |   |
| 5.  | Texturing en materialen                         | } |
| 6.  | Camera's en belichting                          |   |
| 7.  | Visuele effecten, particles                     | } |
| 8.  | Animatie  |   |
| 9.  | Grease Pen en 2D animaties                      |   |
| 10. | Rendering en nabewerking                        | } |

# POSITIE IN DE 3D WERELD





# POSITIE IN DE 3D WERELD

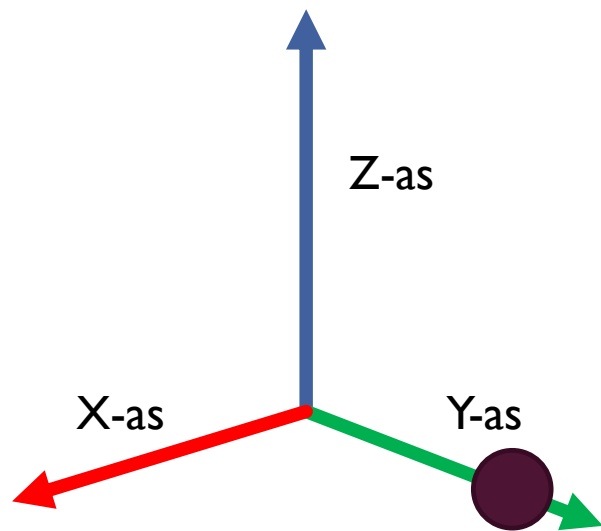


$$X=0$$

$$Y=0$$

$$Z=0$$

# POSITIE IN DE 3D WERELD

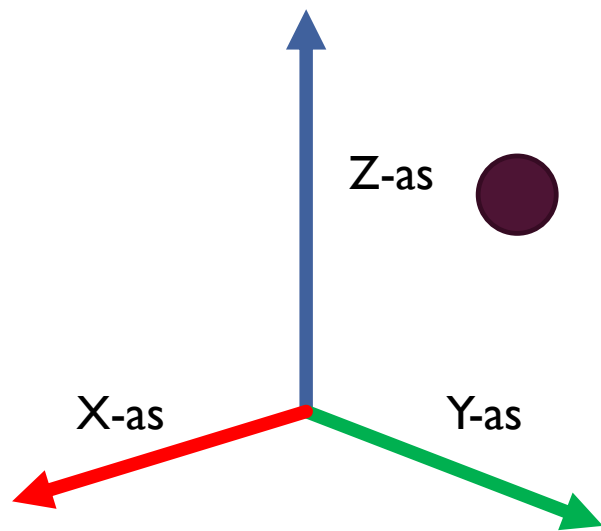


$$X=0$$

$$Y=1$$

$$Z=0$$

# POSITIE IN DE 3D WERELD



$$X=0$$

$$Y=1$$

$$Z=1$$

VORM:  
VERSCHILLENDE D'S

ID

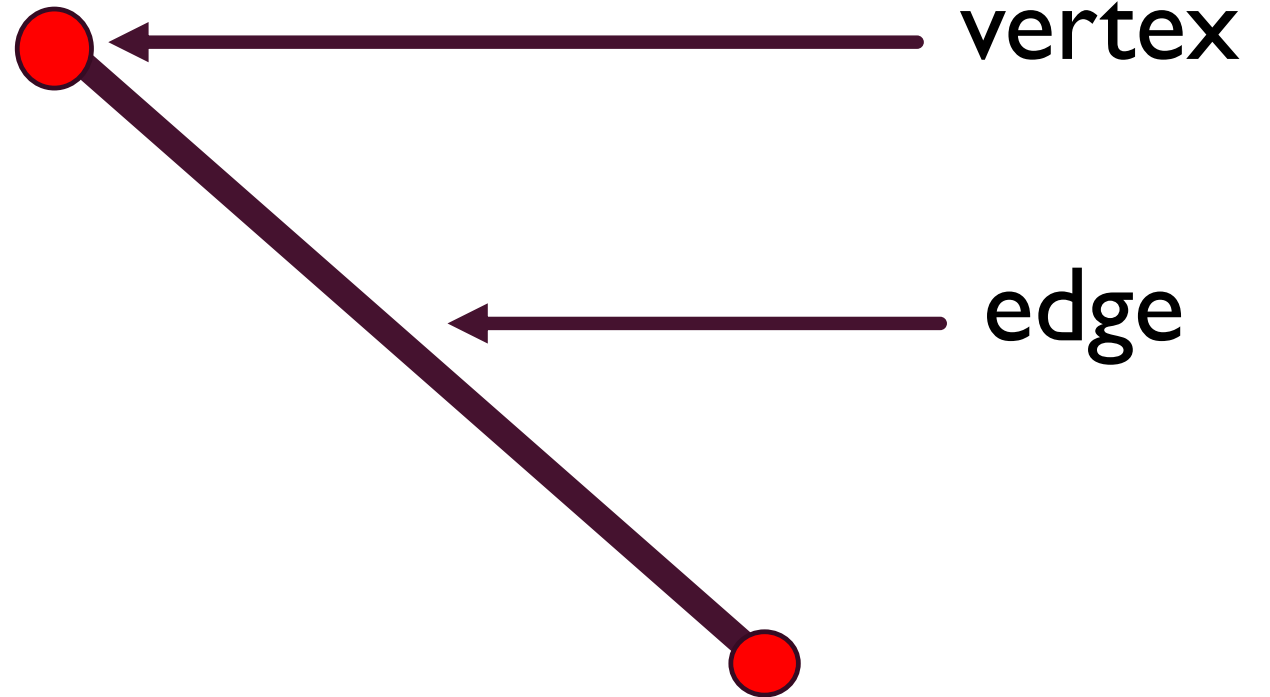


vertex



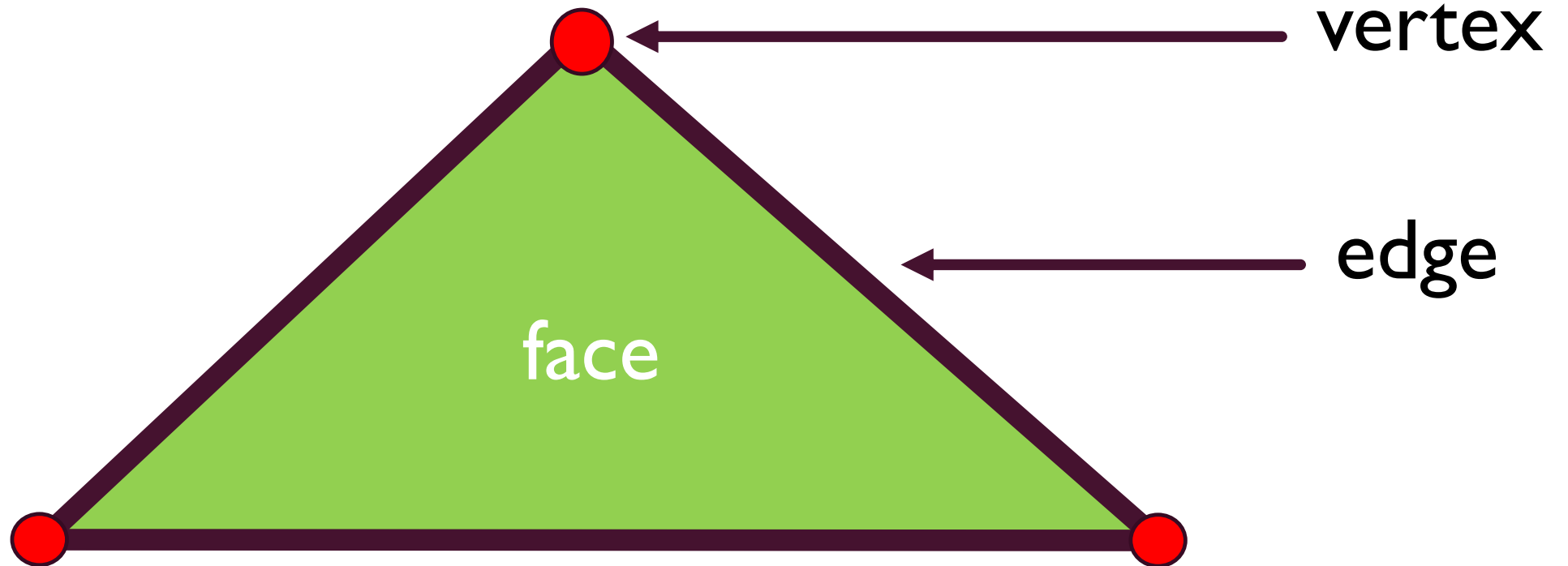
# VORM: VERSCHILLENDE D'S

2D



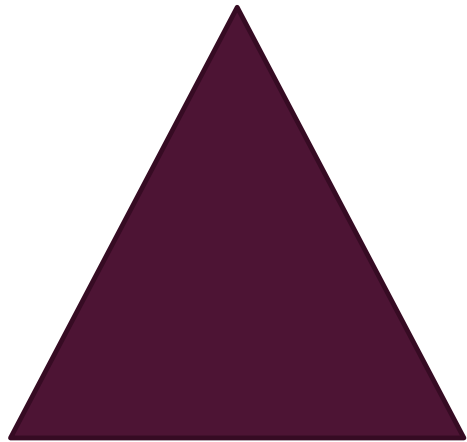
# VORM: VERSCHILLENDE D'S

3D



# POLIGONS

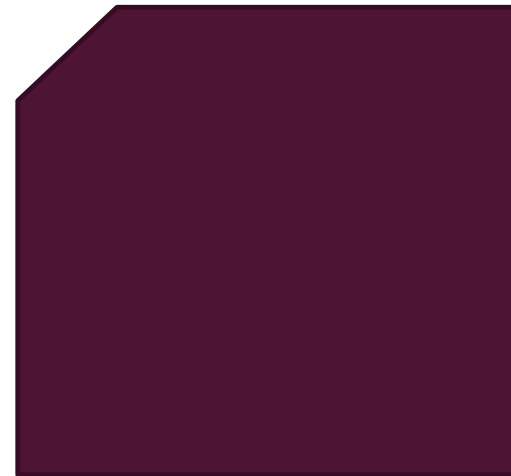
TRI



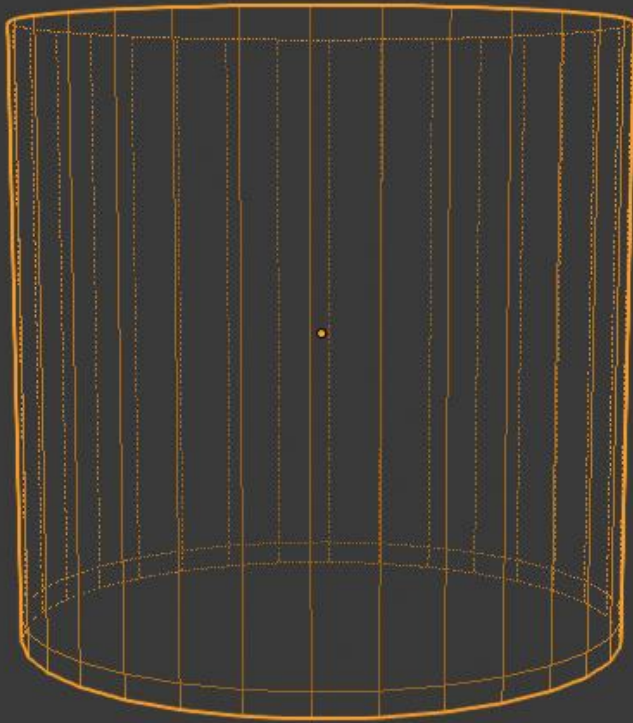
QUAD



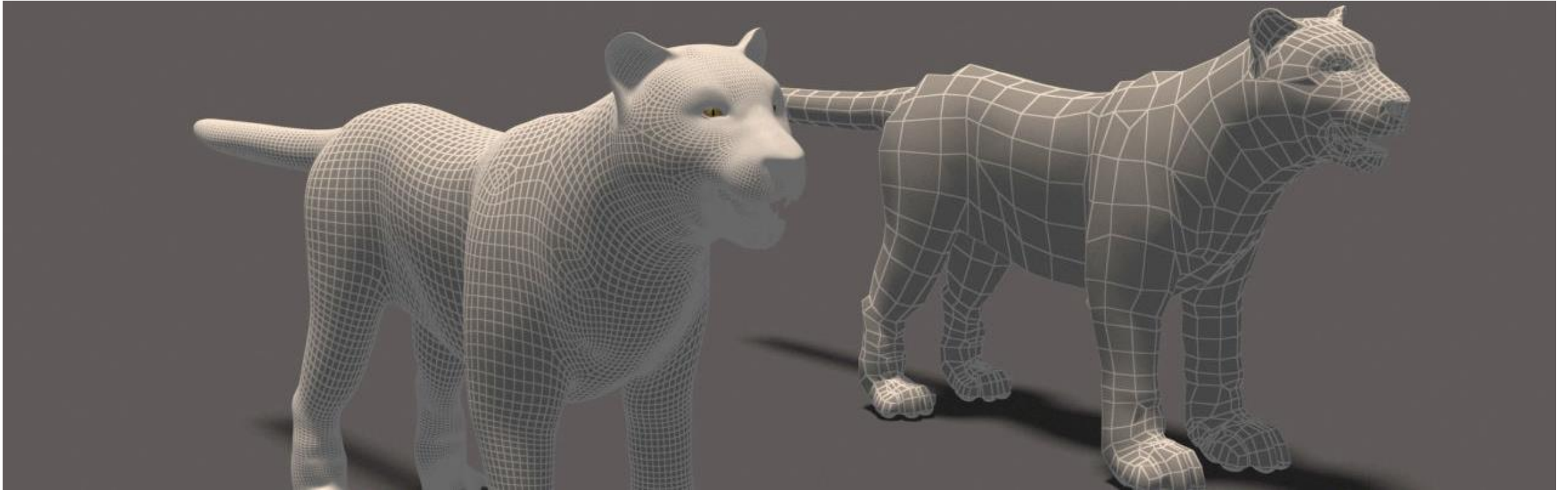
NGON



# QUAD'S VERSUS TRI'S



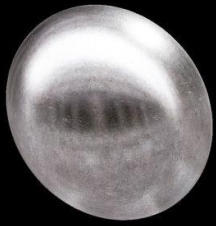




HIGHPOLY VERSUS LOWPOLY



# UV MAPPING



STEEL



IRON



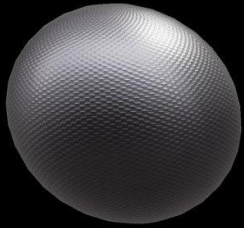
ALUMINUM



GALVANIZED



CHROME



CARBON FIBER



PLASTIC



ROUGH PLASTIC



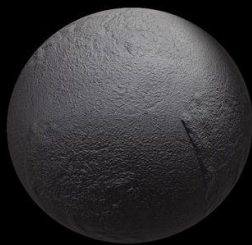
RUBBER



WORN RUBBER



TARP



ASPHALT



CONCRETE



COBBLESTONE

## MATERIAL: PHYSICALLY BASED RENDERING OF PBR

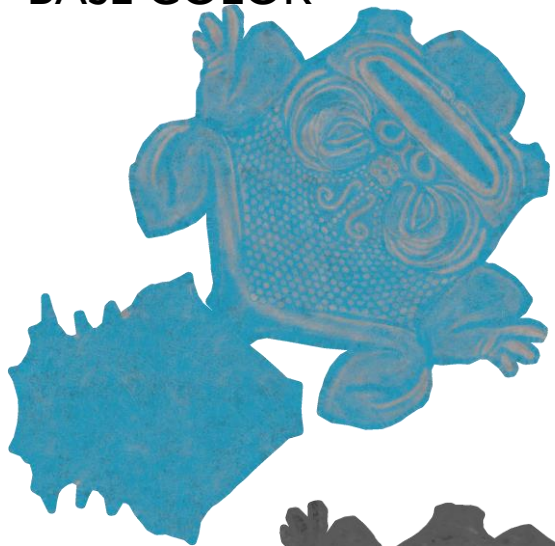
# MODEL + MATERIAAL



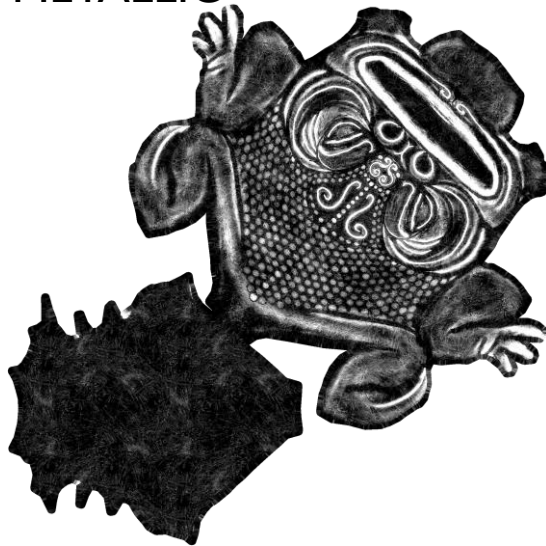


# MODEL + MATERIALAAL

BASE COLOR



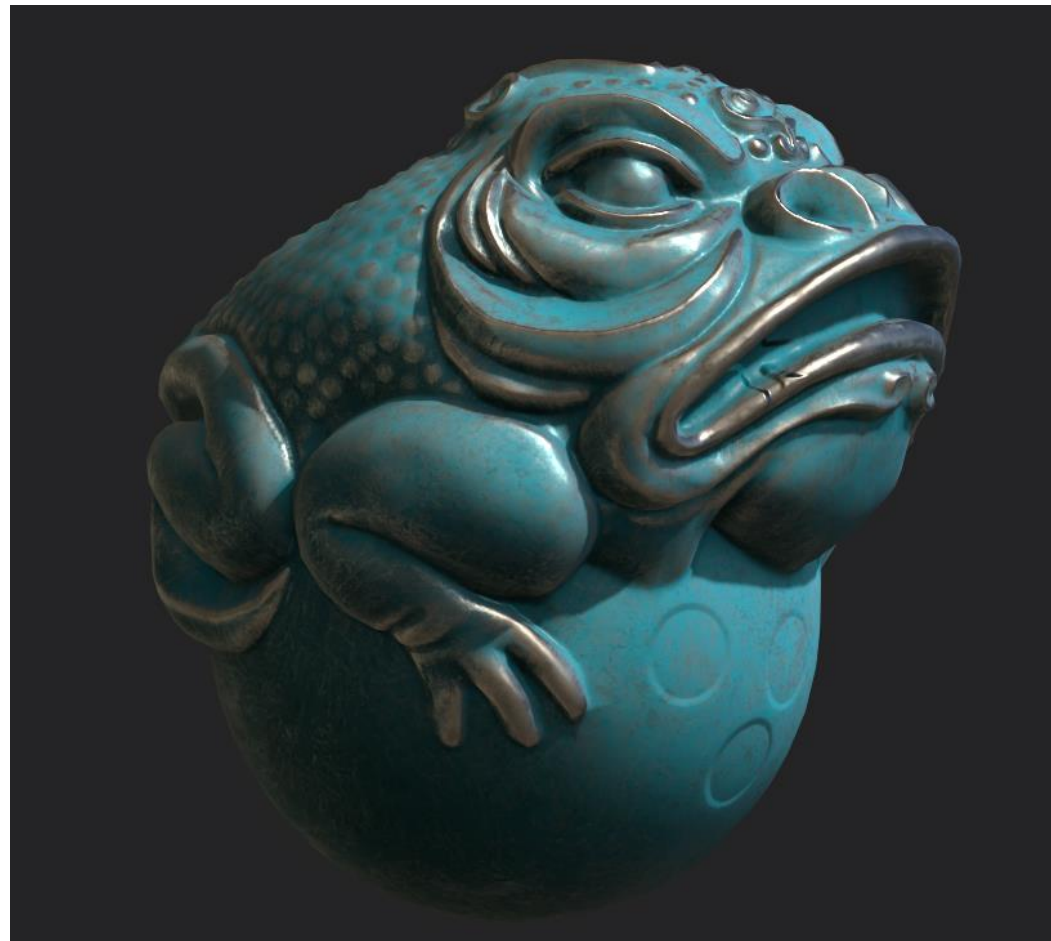
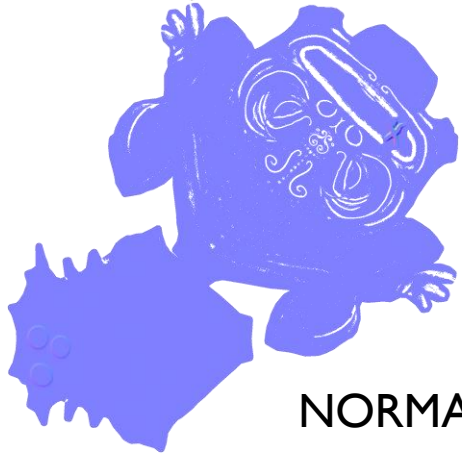
METALLIC



ROUGHNESS



NORMAL



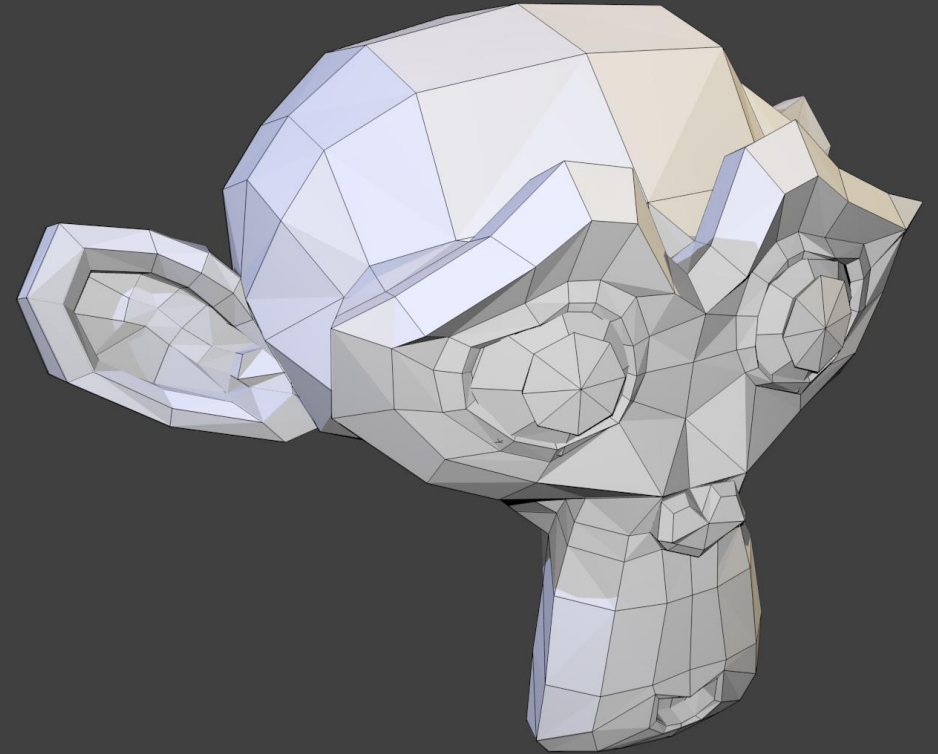


FOTOREALISME

# LES 1 BC: WAT IS BLENDER?

HET ZWITSERS ZAKMES VOOR 3D GRAPHICS

- Gratis
- Open source
- Relatief klein
- Veel verbeteringen







WAT KAN JE  
MET BLENDER?





# GESCHIEDENIS VAN BLENDER

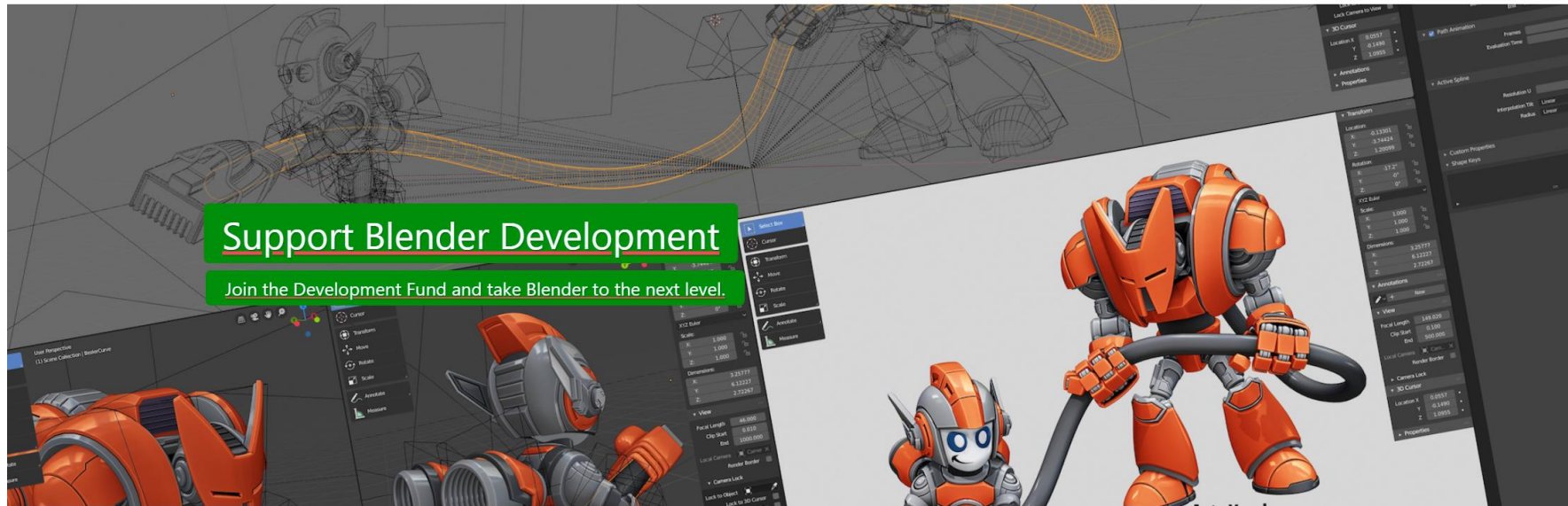
Oprichter: Ton Roosendaal

- 1990 NEOGEO (ontwikkeld in Eindhoven)
- 1998 BLENDER versie 1
- 2002 BLENDER versie 2
- 2019 BLENDER versie 2.80





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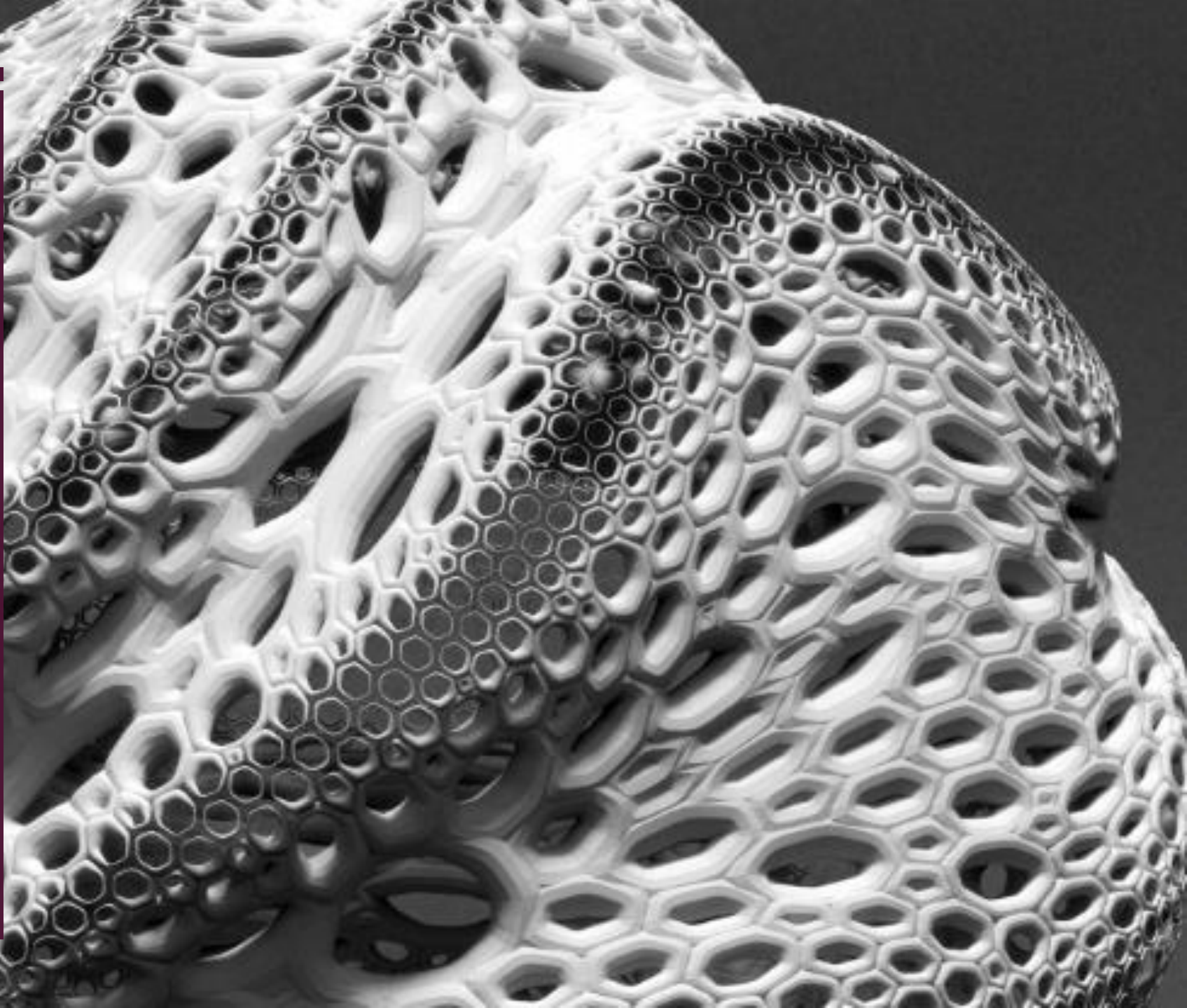
[Download Blender 2.79b](#)

# BLENDER.ORG



# ANDERE BIJZONDERHEDEN VAN BLENDER

- PORTABLE (kan dus gewoon van een usb-stick draaien!)
- RELATIEF KLEIN (~120 MB)
- ADD-ON's





DOWNLOAD