

Historie und Spektrum von 3D-Anwendungen

Medienproduktion Berlin-Brandenburg 2010

26. März 2010

Gliederung

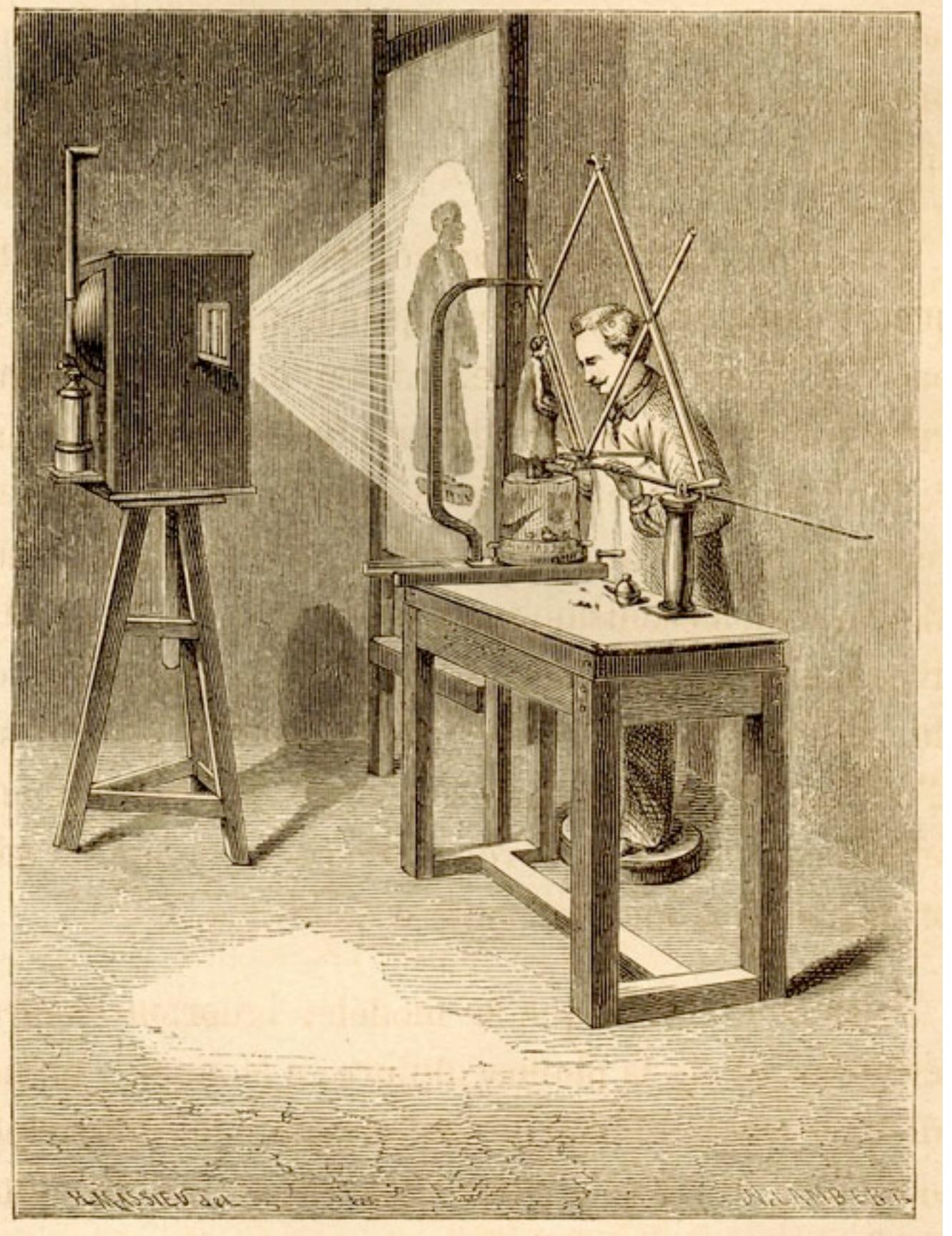
Physiologie

Eingabe

Speicherung

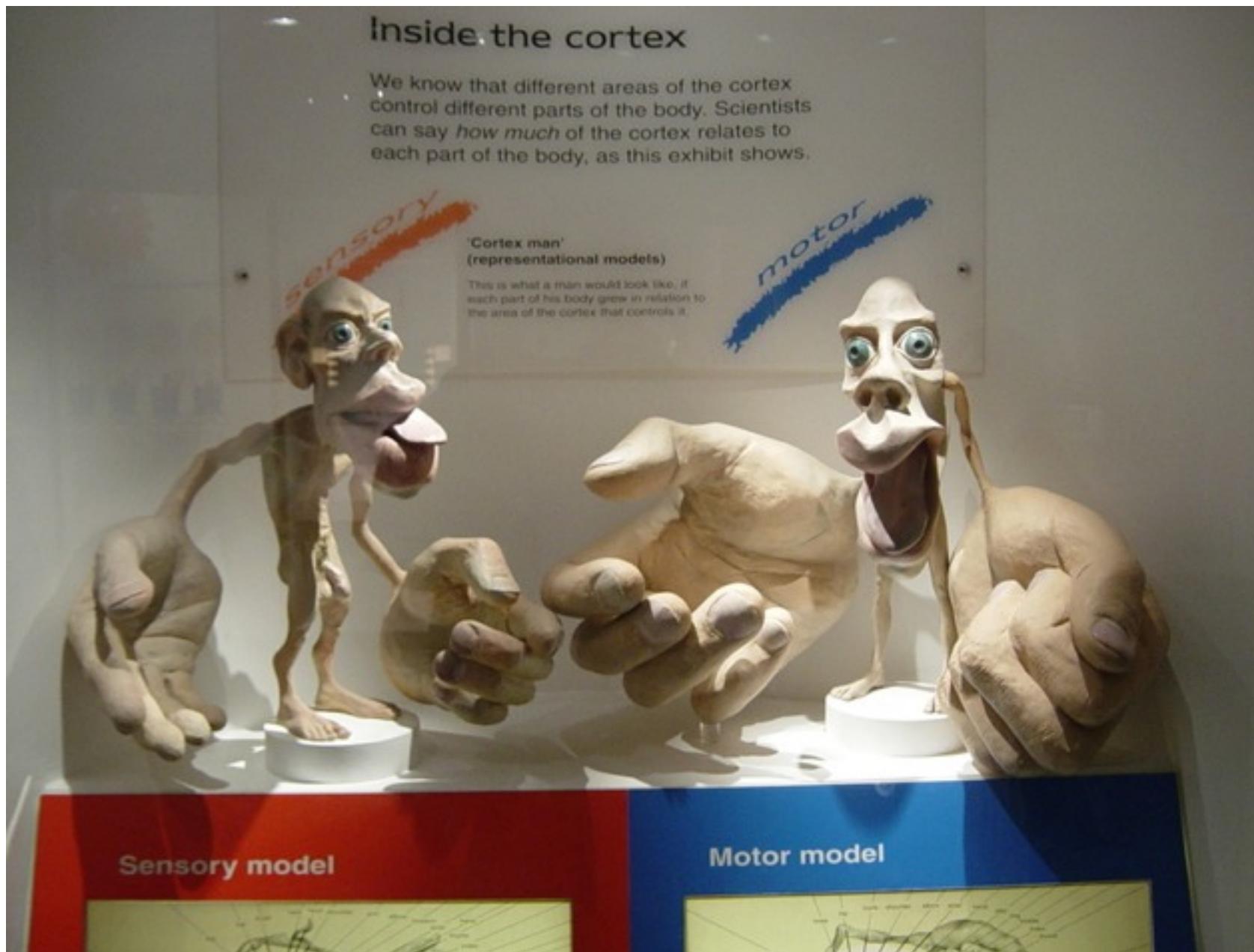
Anwendung

Ausgabe

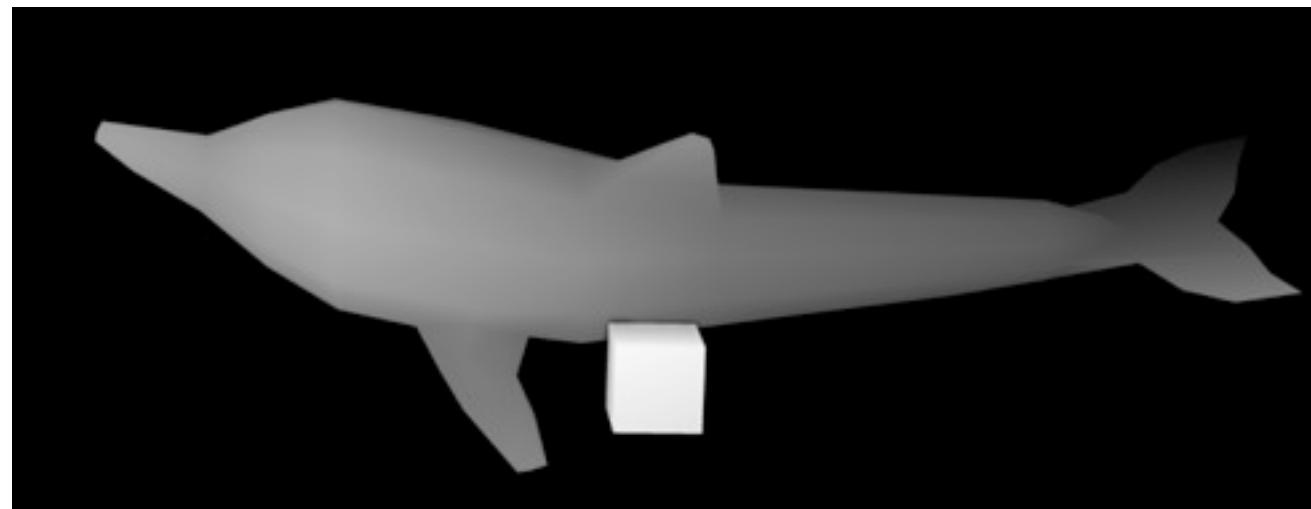
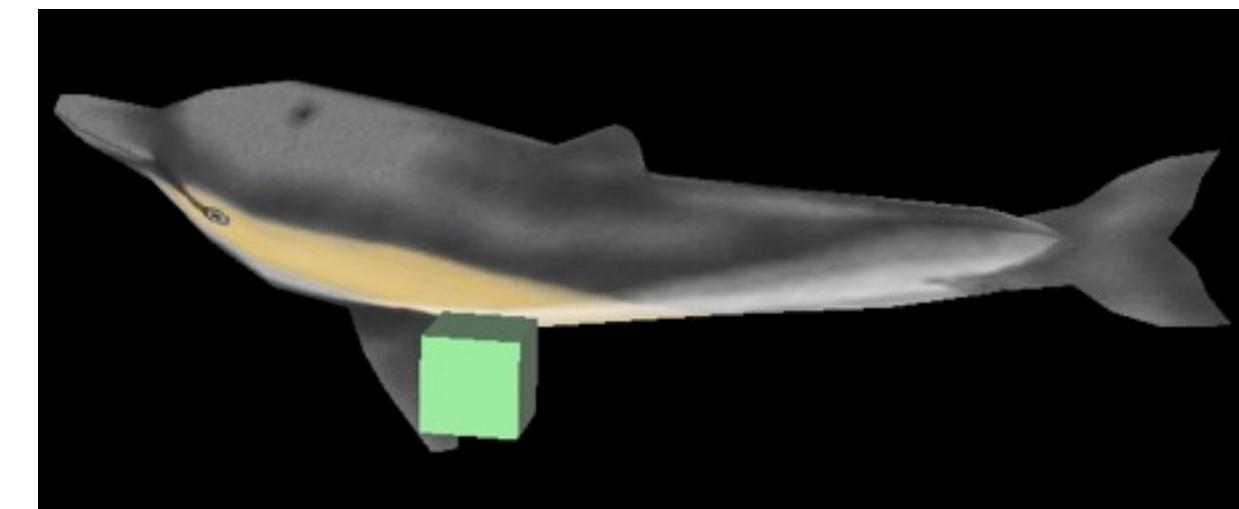
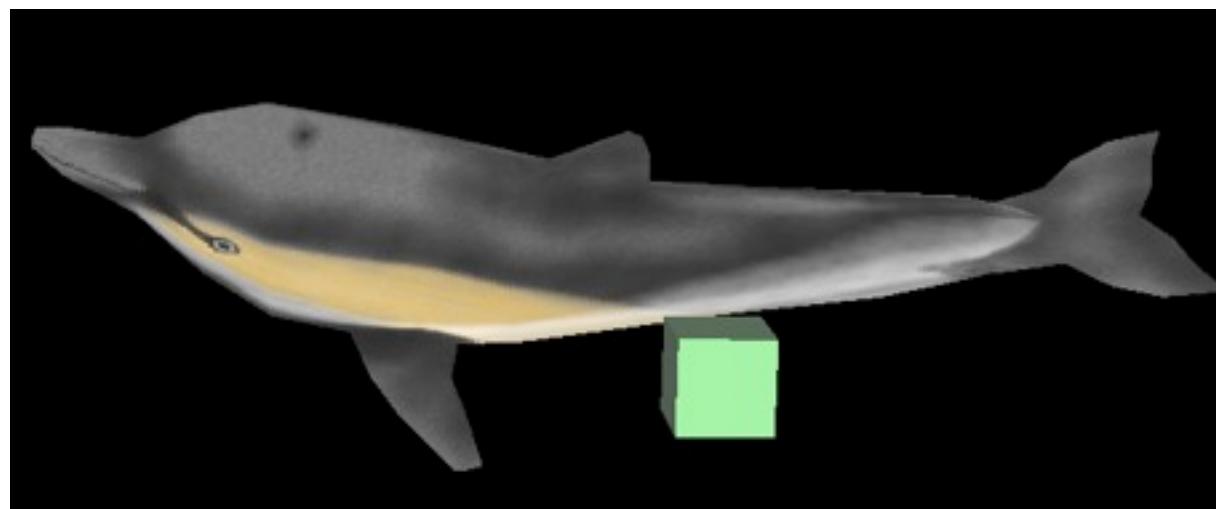
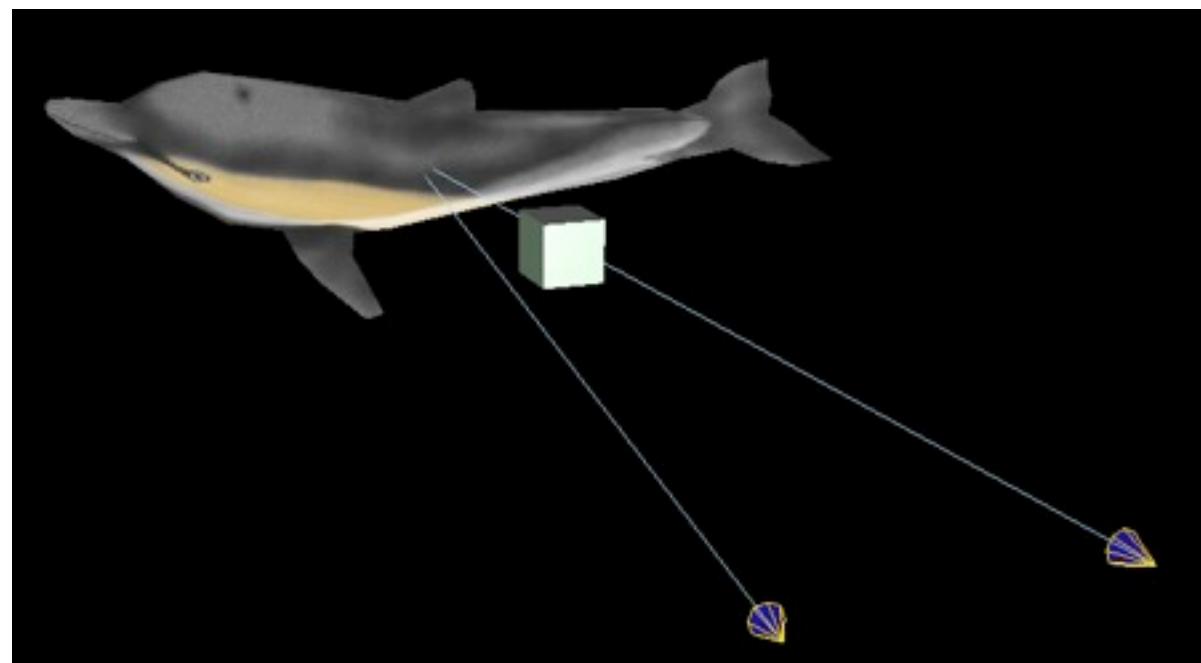


François Willème erstellt eine Photoskulptur, ca. 1860

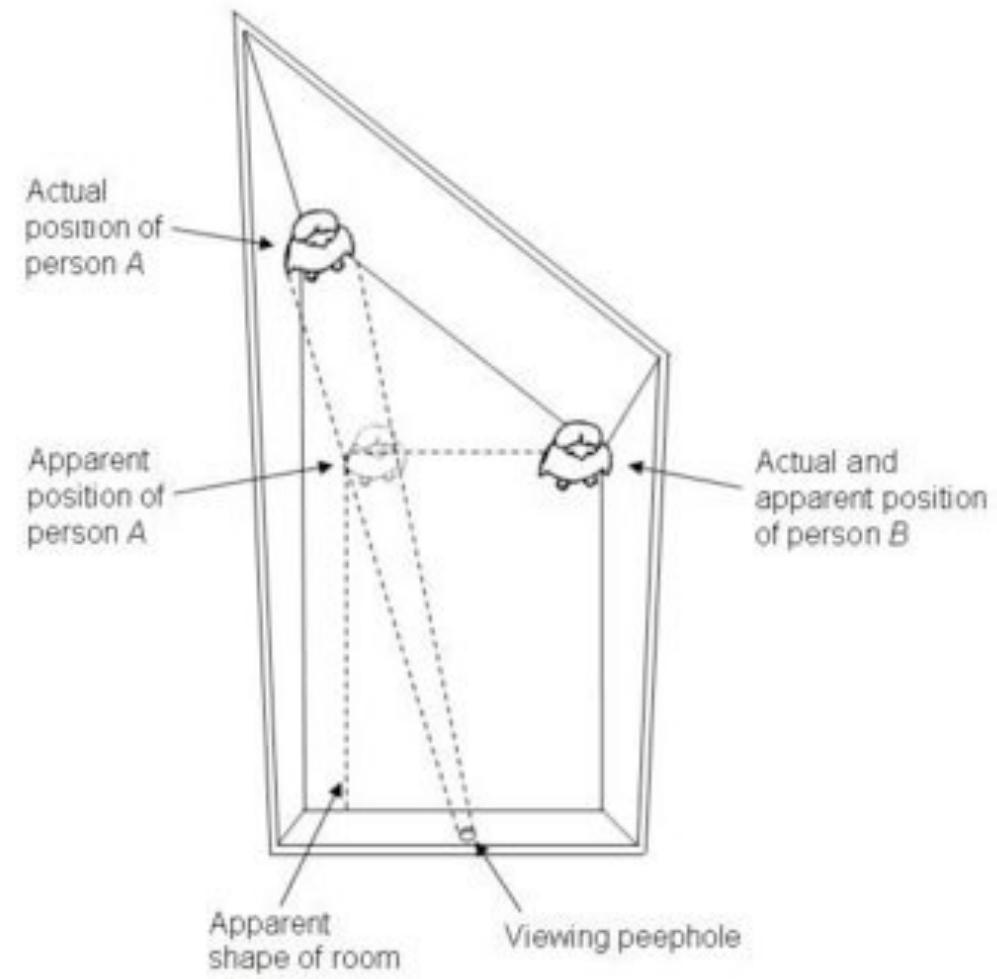
Physiologie des Raums



Stereoskopisches Sehen



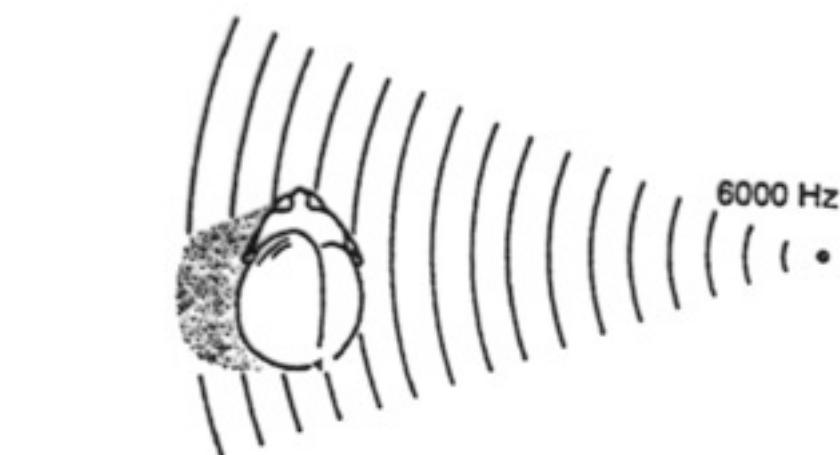
Perspektive (Ames Room)



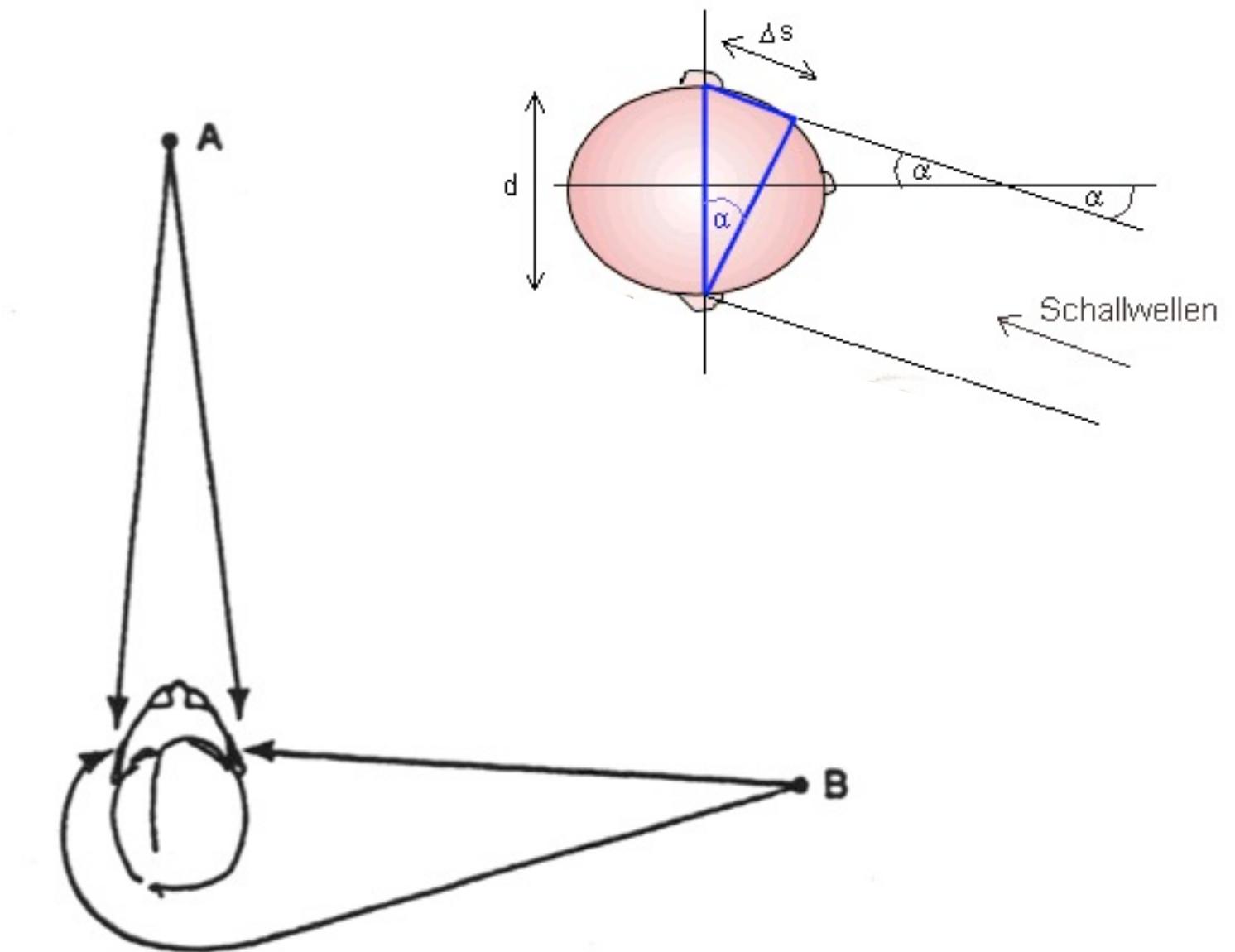
Atmosphärische Perspektive



Räumliches Hören (Binaural)

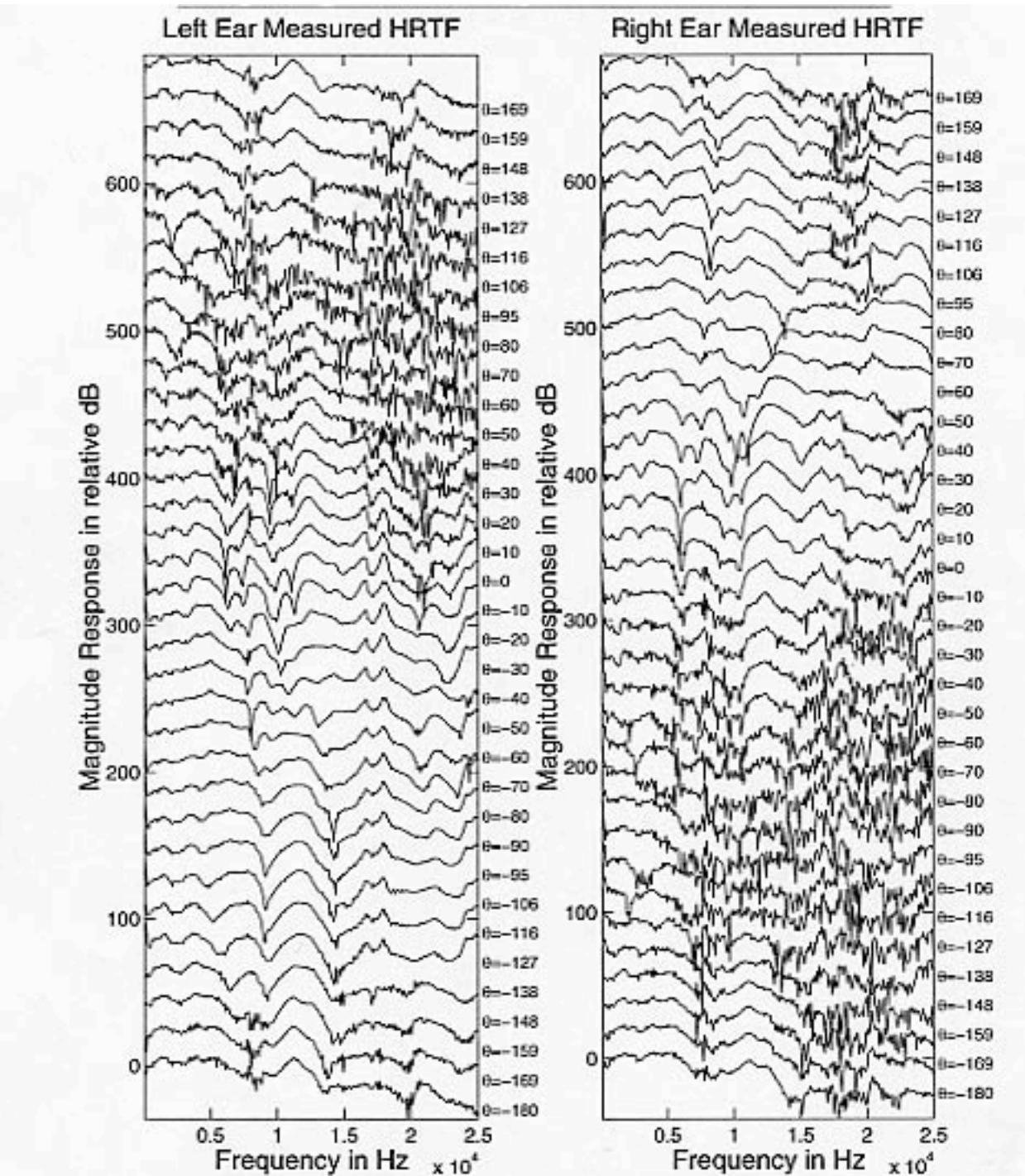


Interauraler Intensitätsunterschied

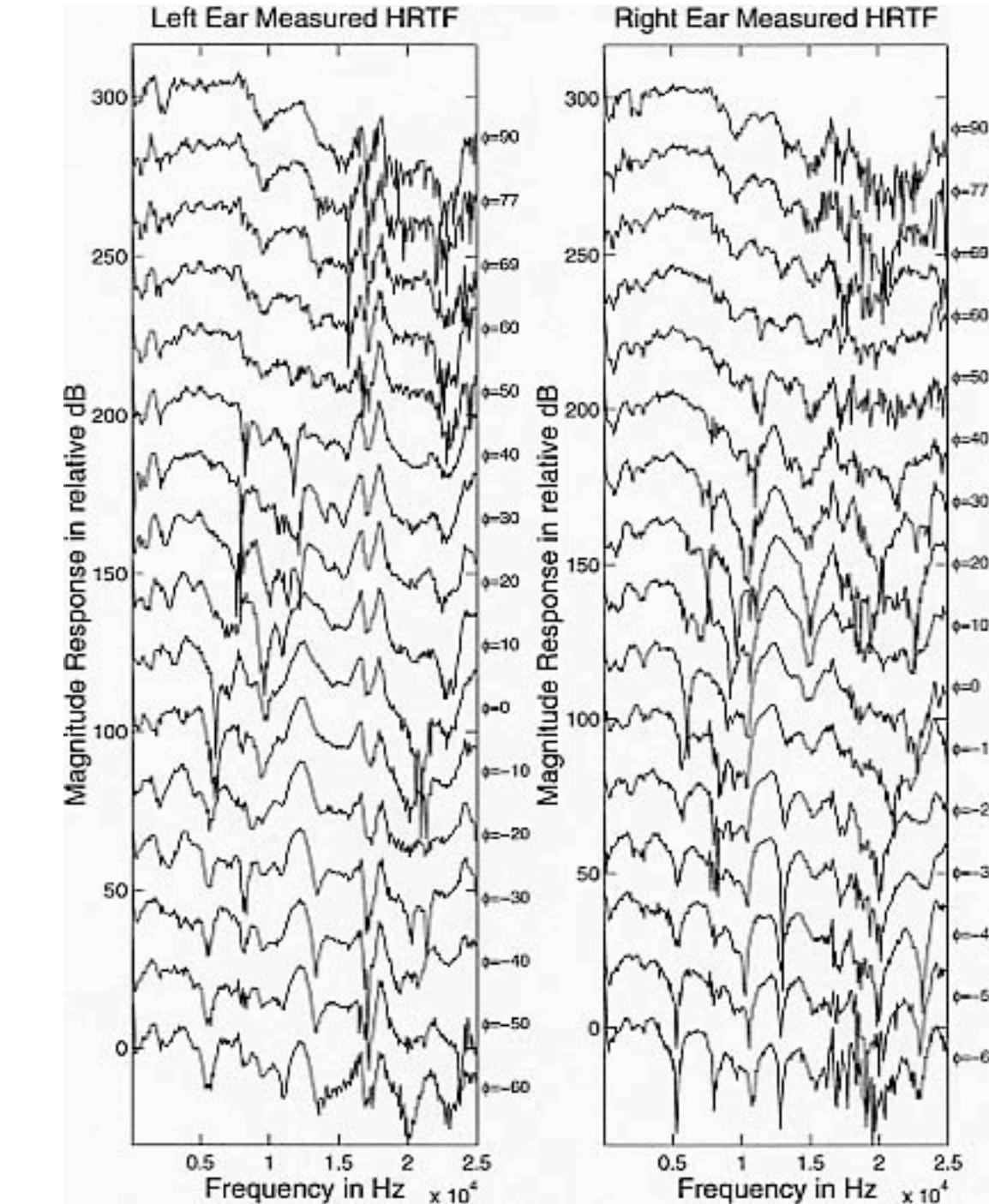


Interauraler Zeitunterschied

Räumliches Hören (Monaural)

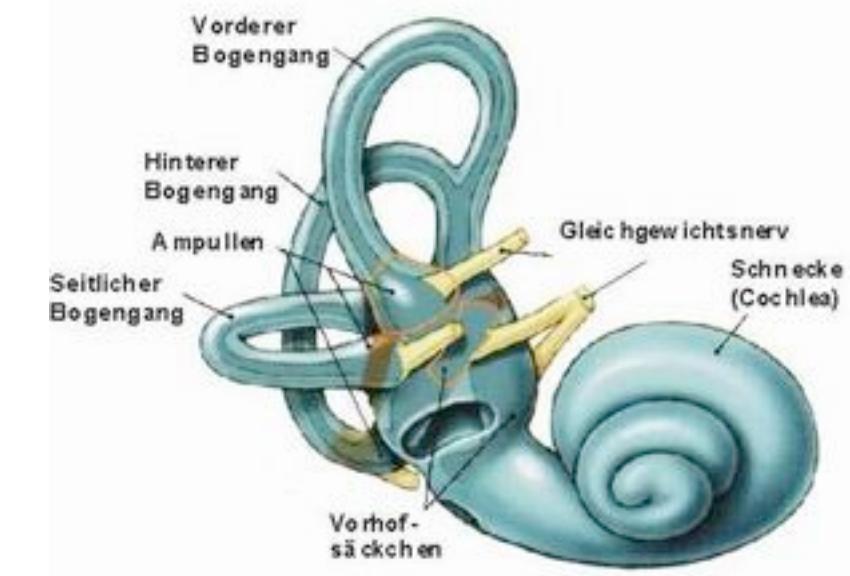
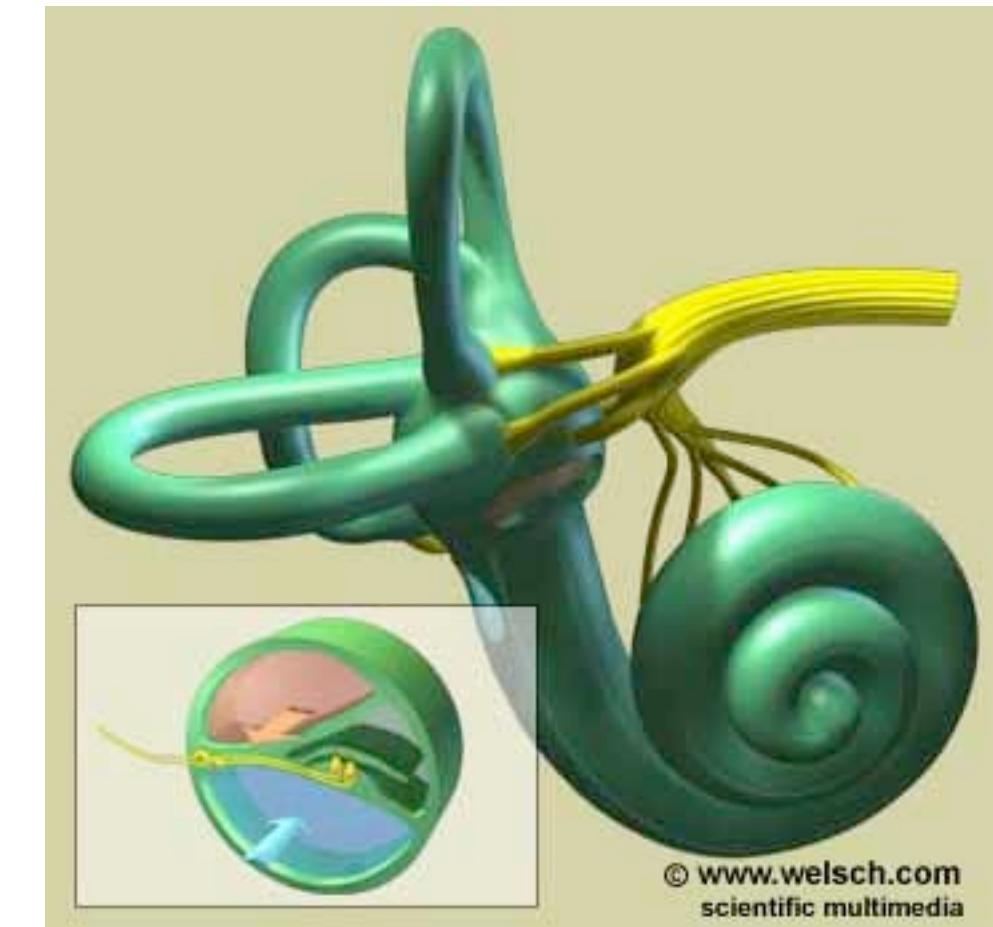
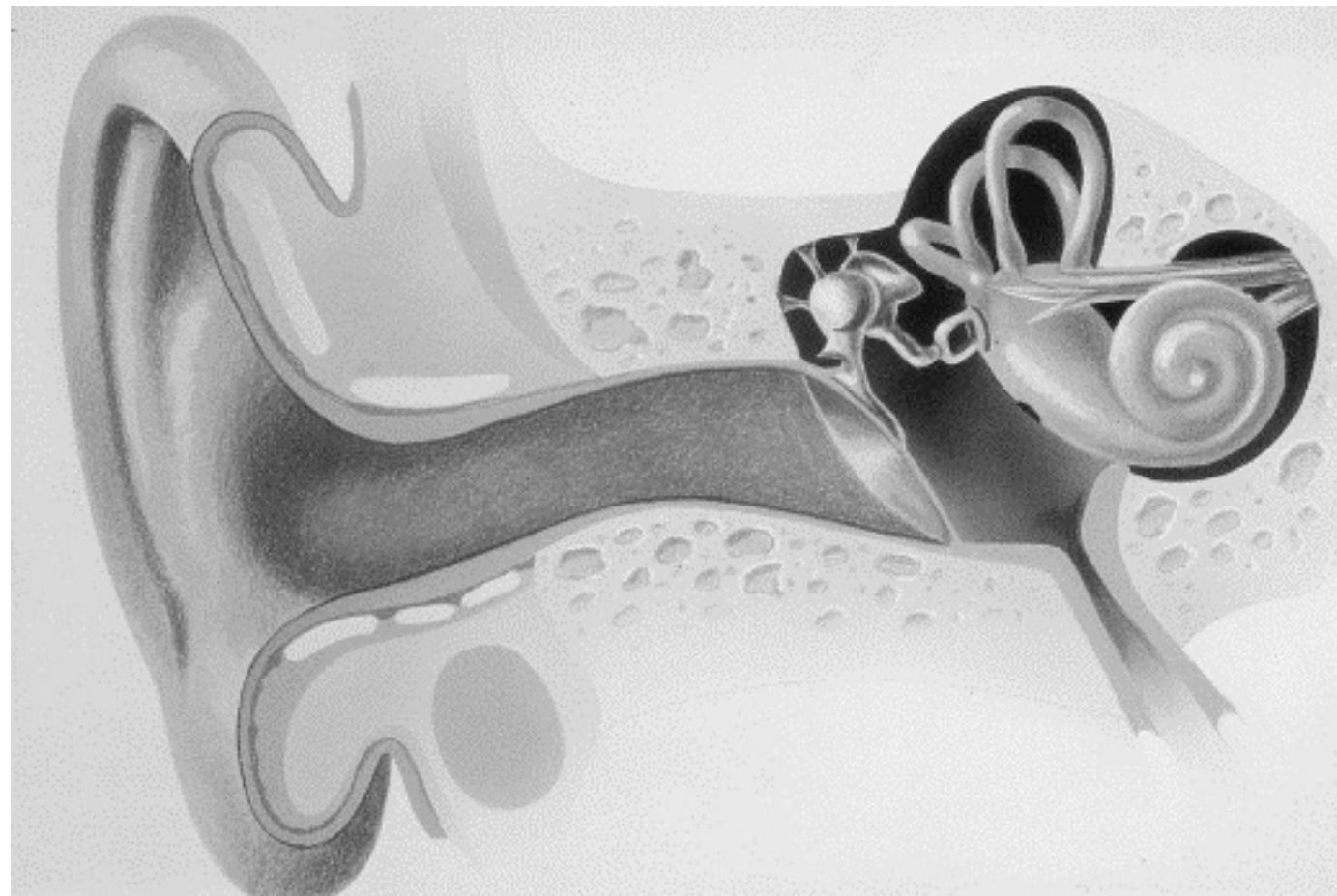


Azimut



Elevation

Vestibuläre Wahrnehmung



Flugsimulation





Brewster-Stereoskop, 1849/50

3D Eingabe

3D Kamera (z.B. Panasonic)

3D Scanner

Motion Capture
Project Natal

3D Matchmoving

3D Modelling

Accelerometrie
Wii
3D Maus

3D Fotoapparat



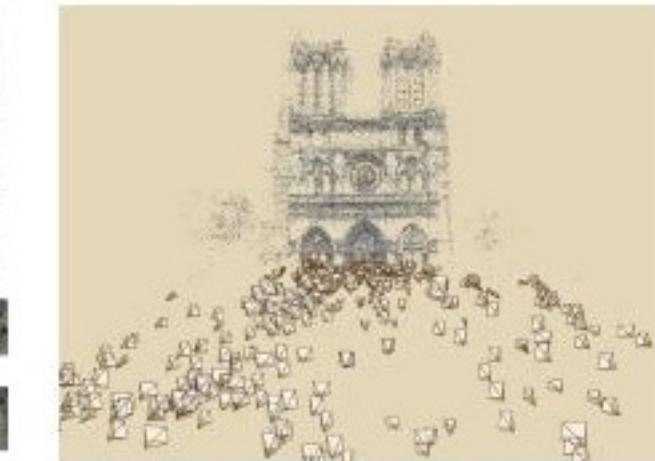
3D Kamera



Konvertierung



(a)



(b)



(c)

Microsoft®

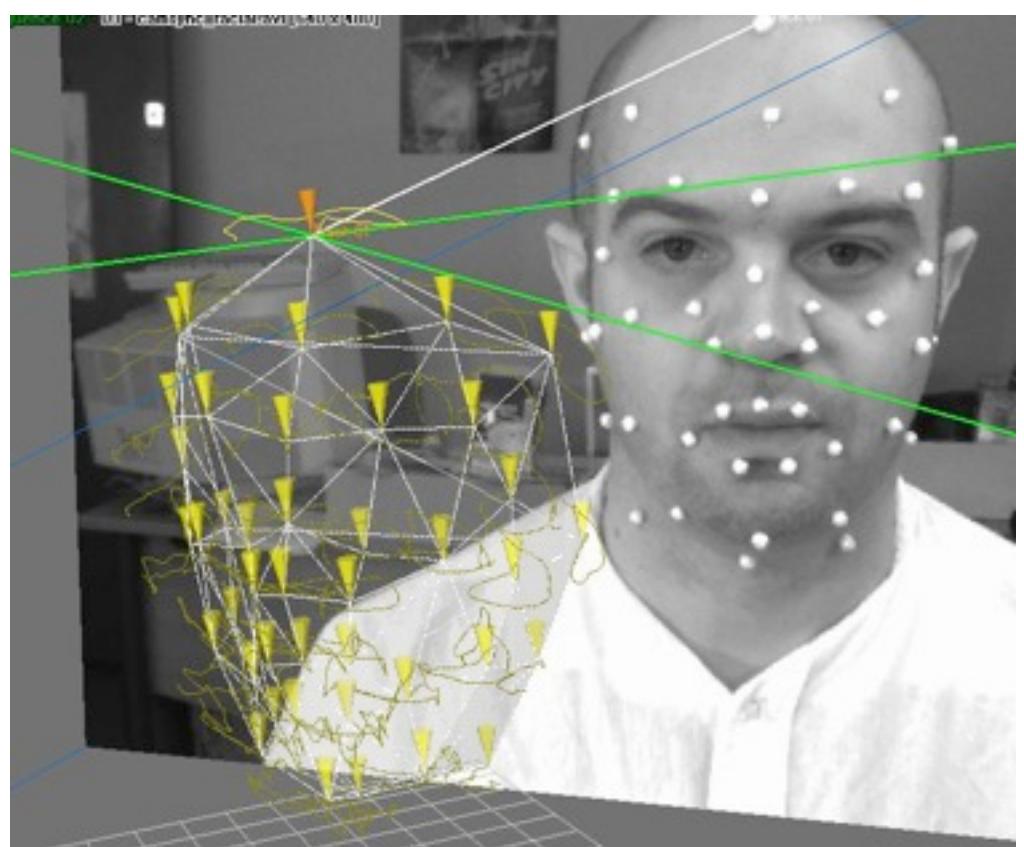
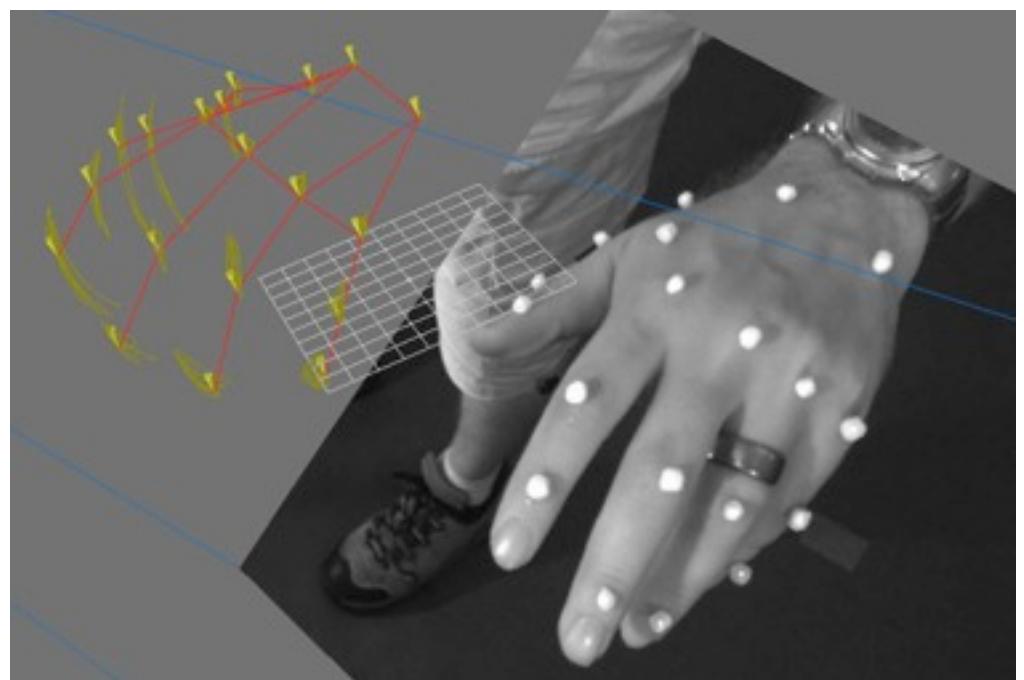
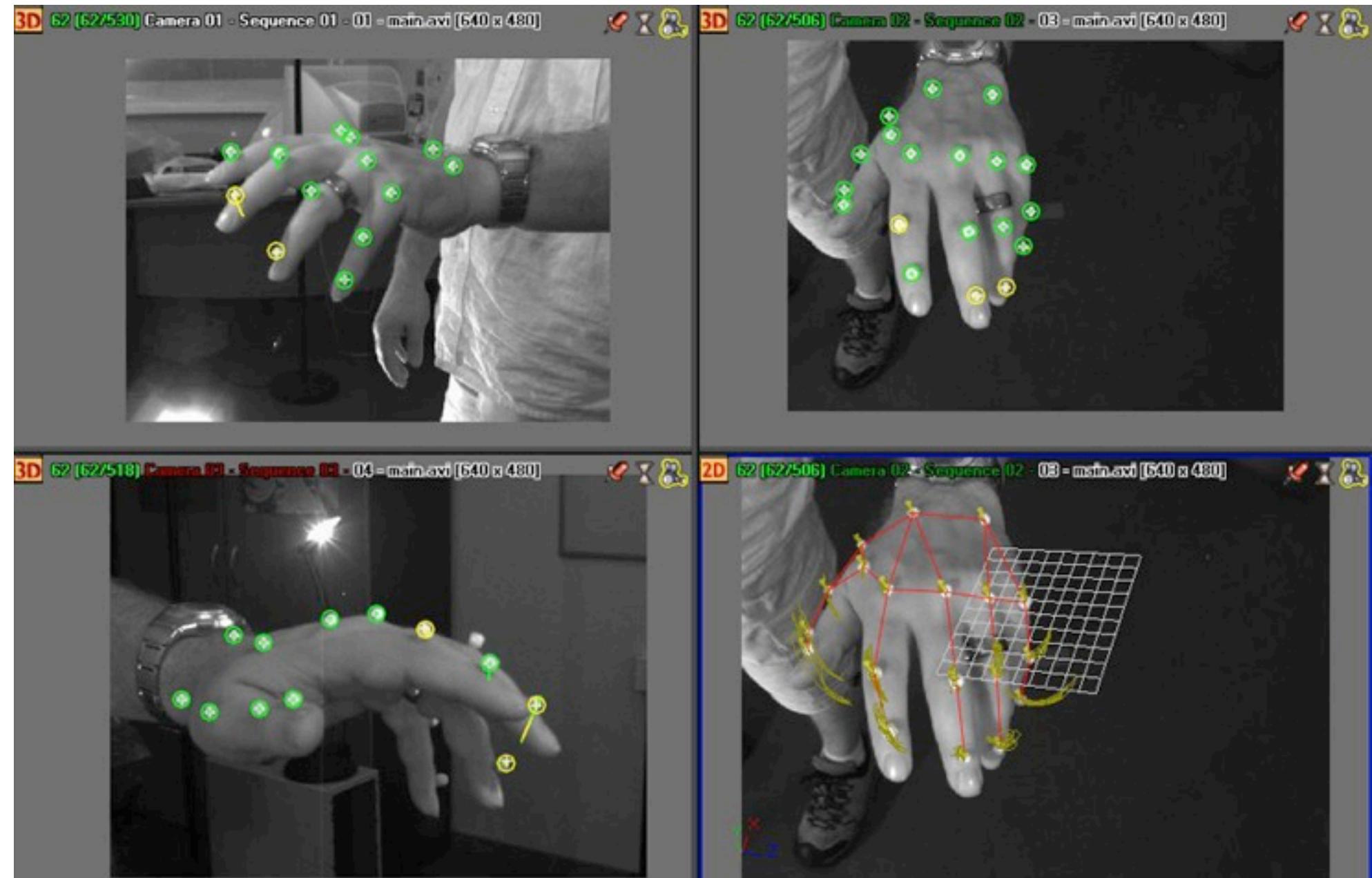


Virtual FX Converter

Matchmoving



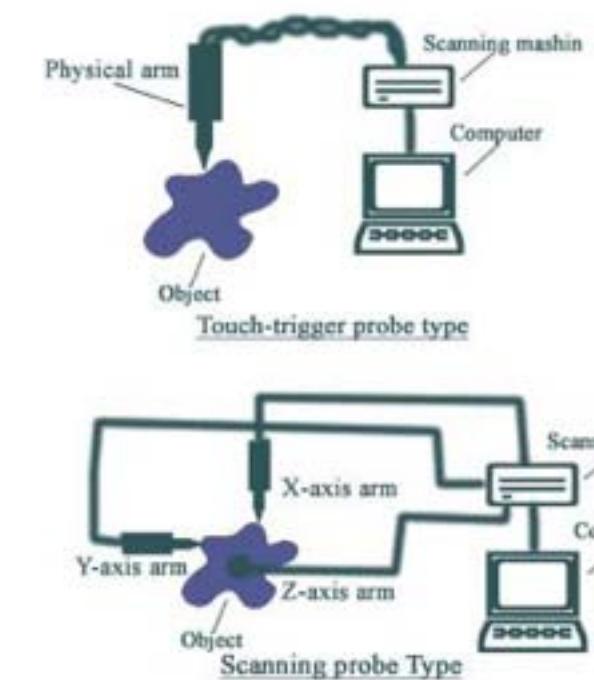
Motion Capture



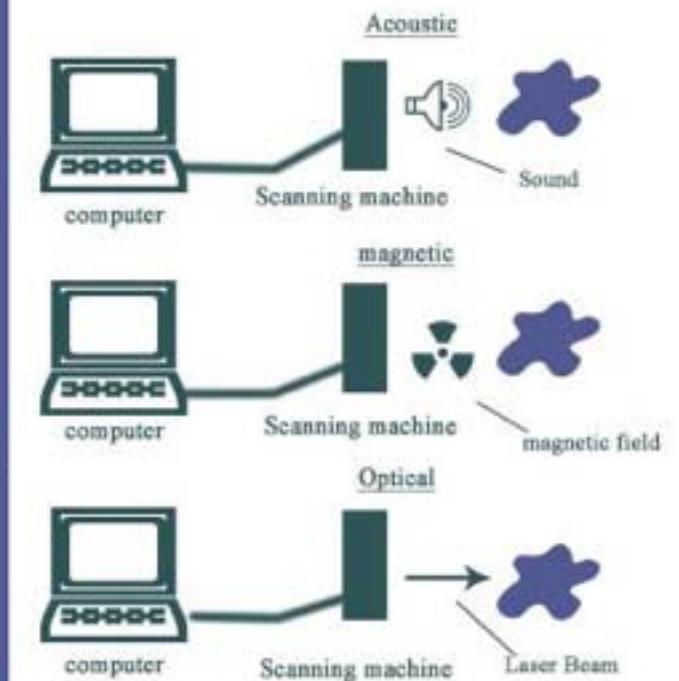
3D Scanner



Contact type



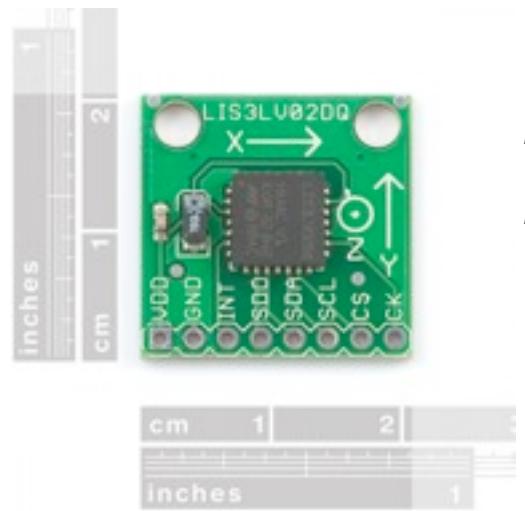
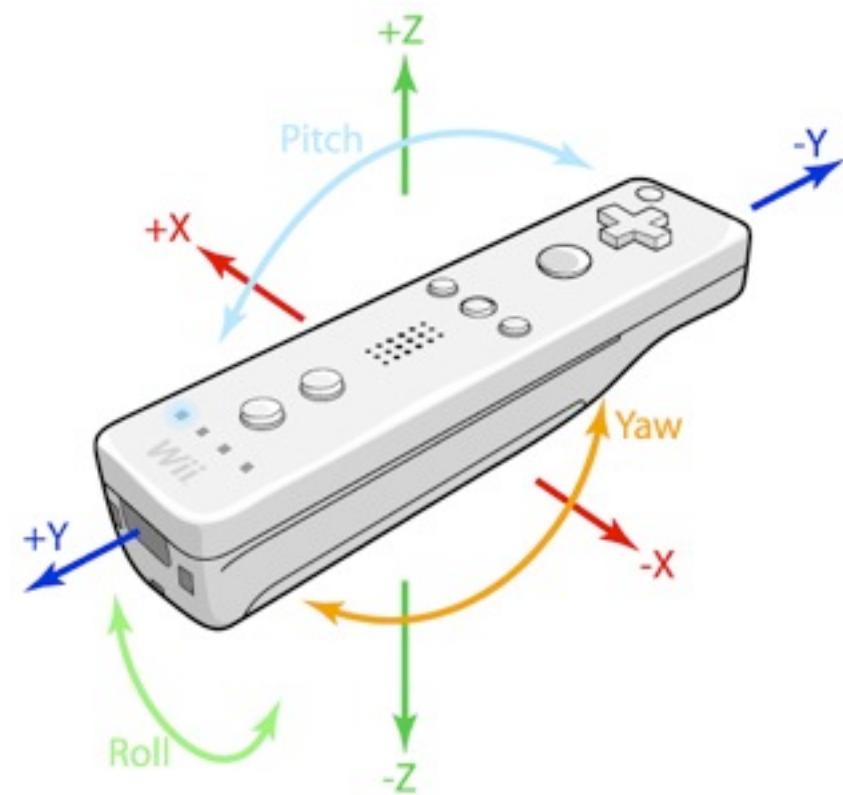
Non-contact type



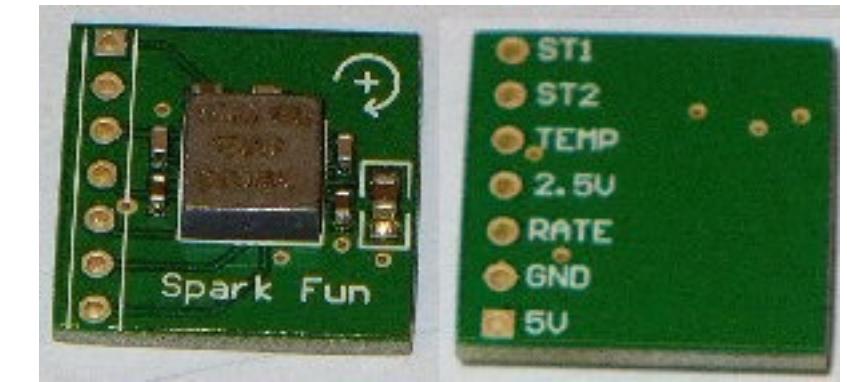
Project Natal



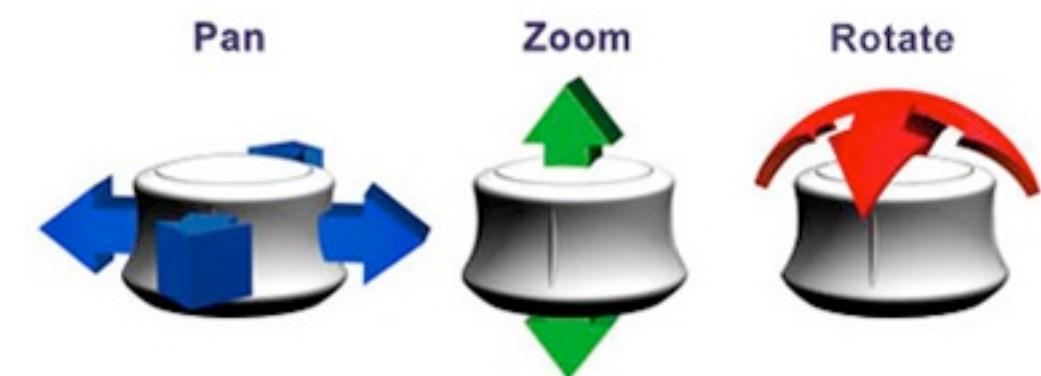
3D Sensoren



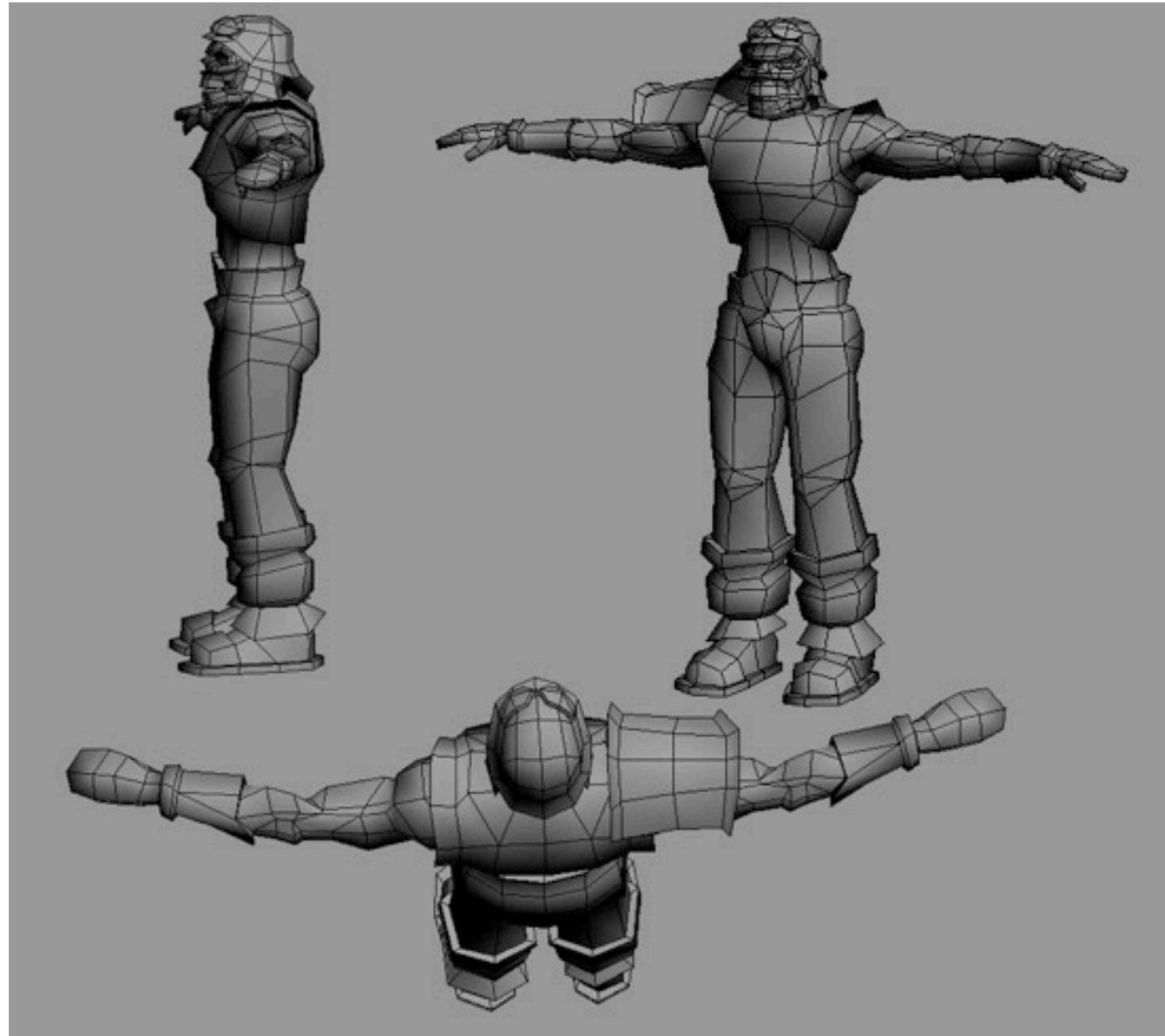
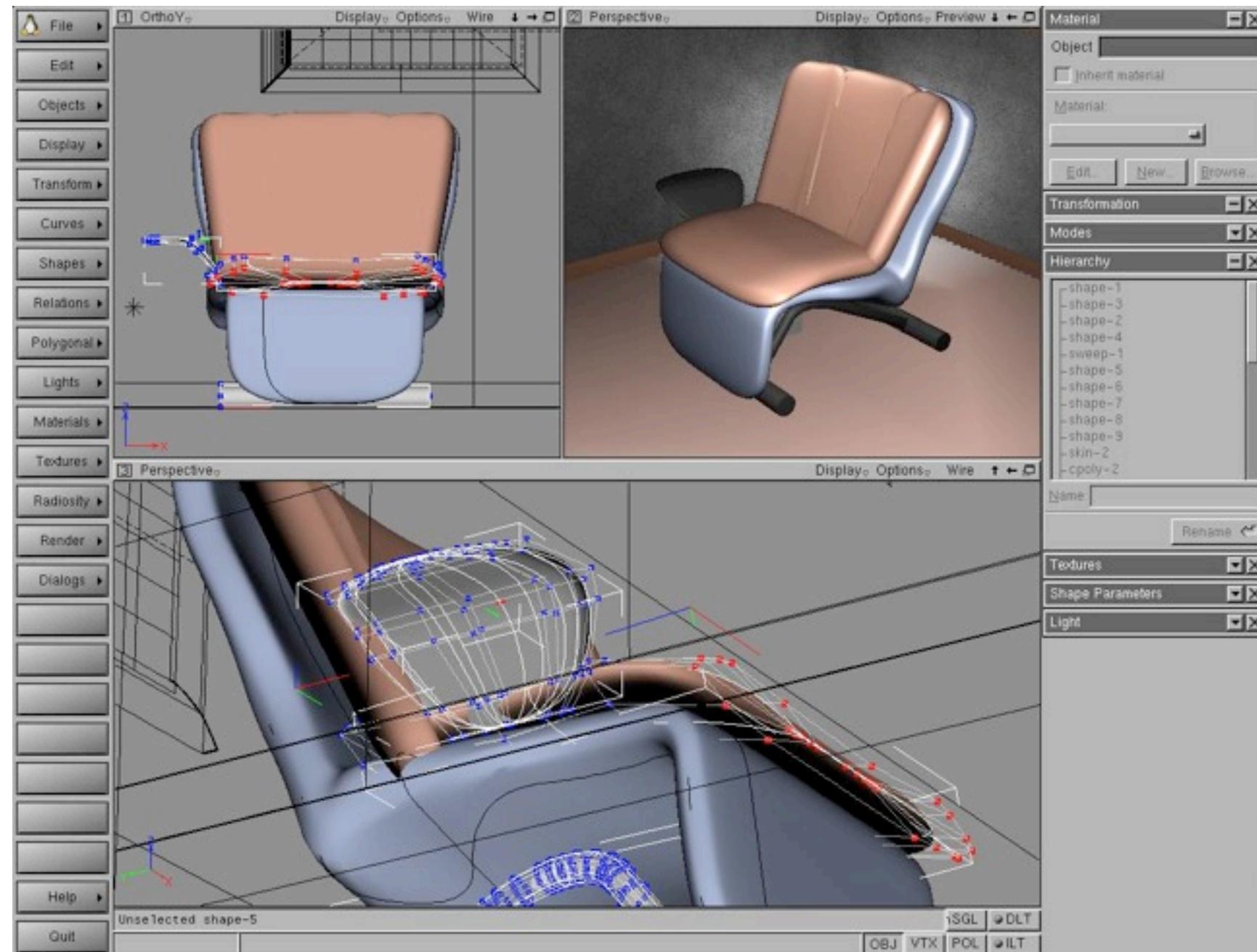
3-Achsen Beschleunigungssensor-Modul mit LIS3LV02DQ MEMS Inertial Sensor von STM, Messbereich $\pm 2\text{g}/\pm 6\text{g}$, SPI- und I²C-Schnittstelle



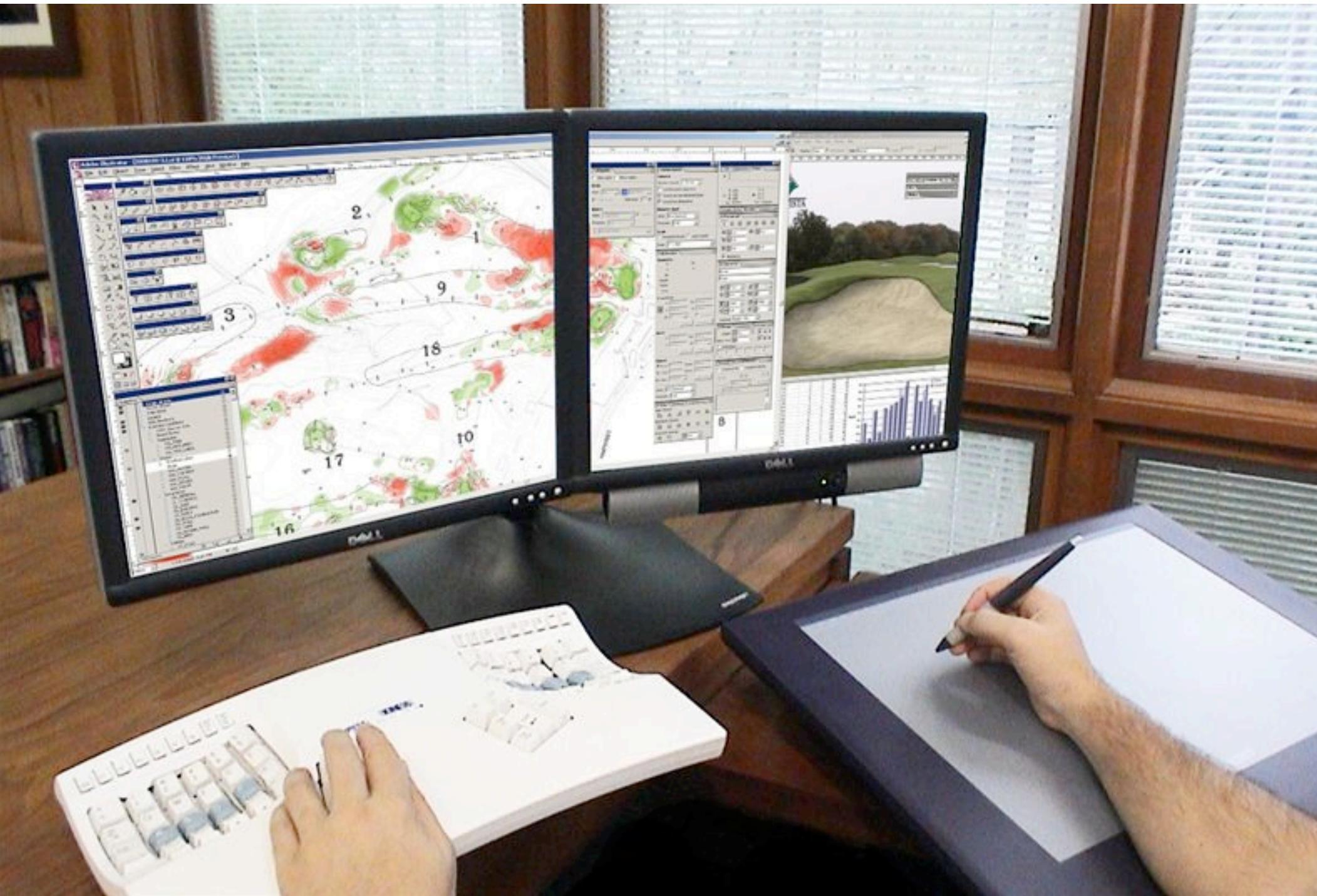
3D Maus



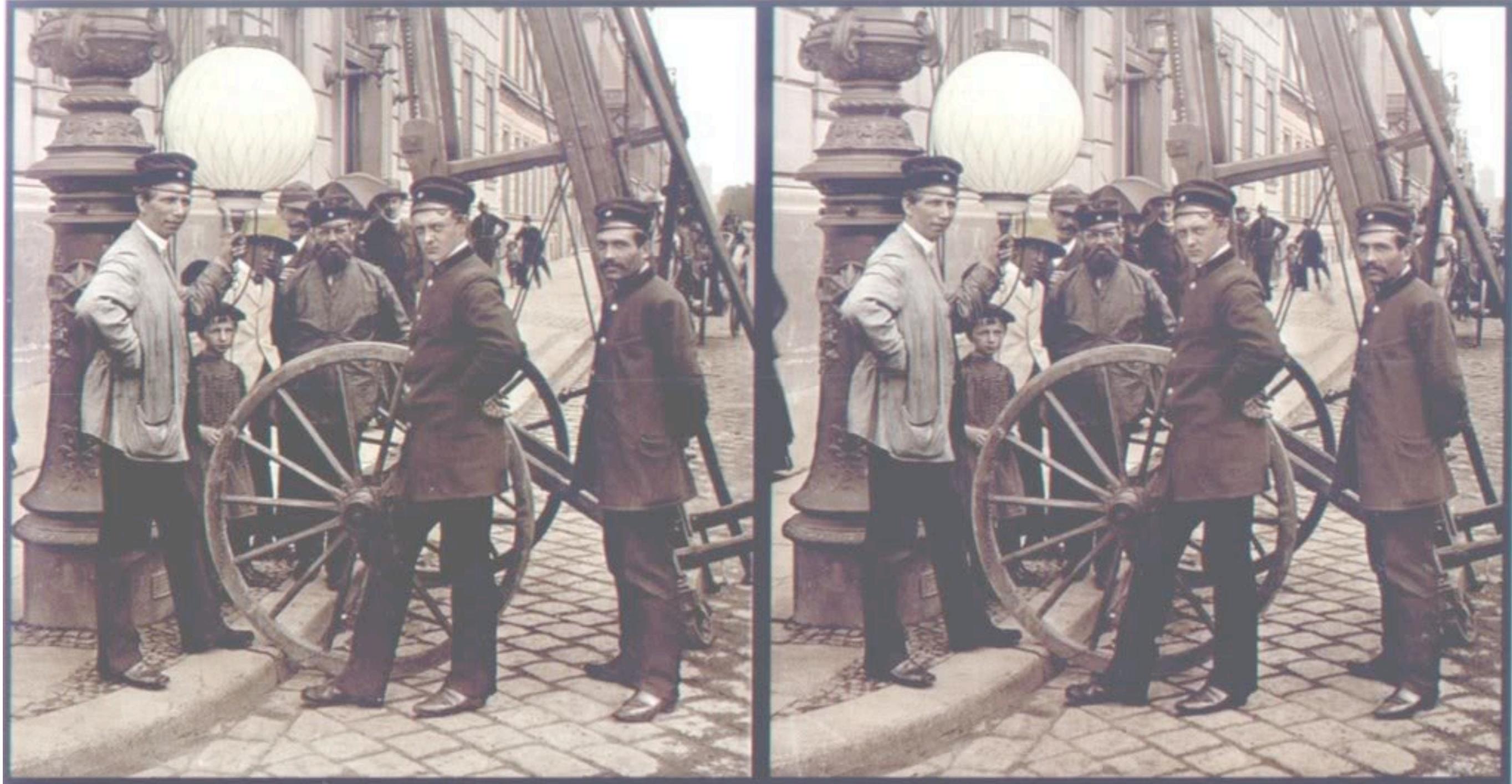
3D Modellierung



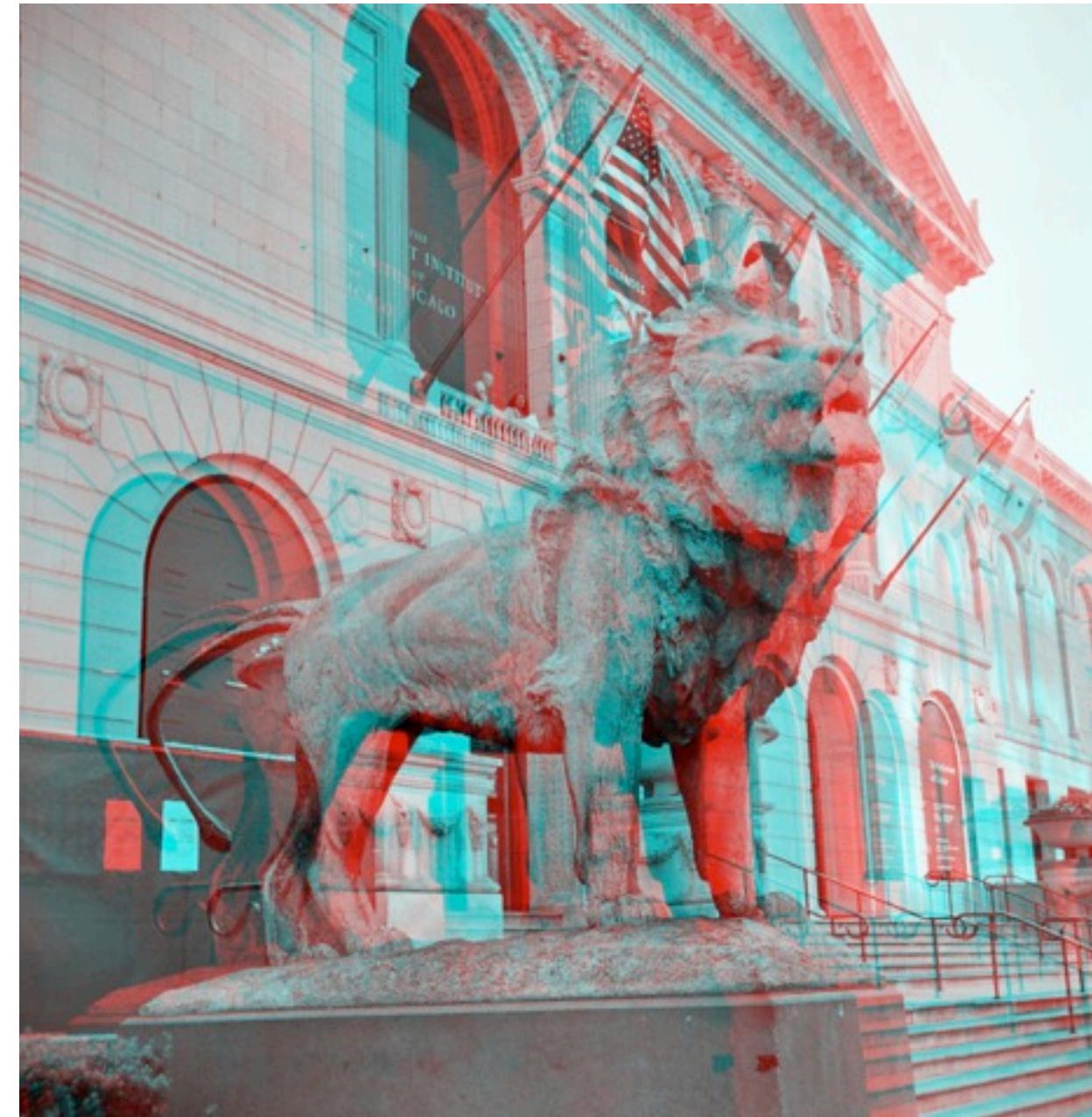
3D Eingabegeräte



Speicherformate: Side-by-Side 3D

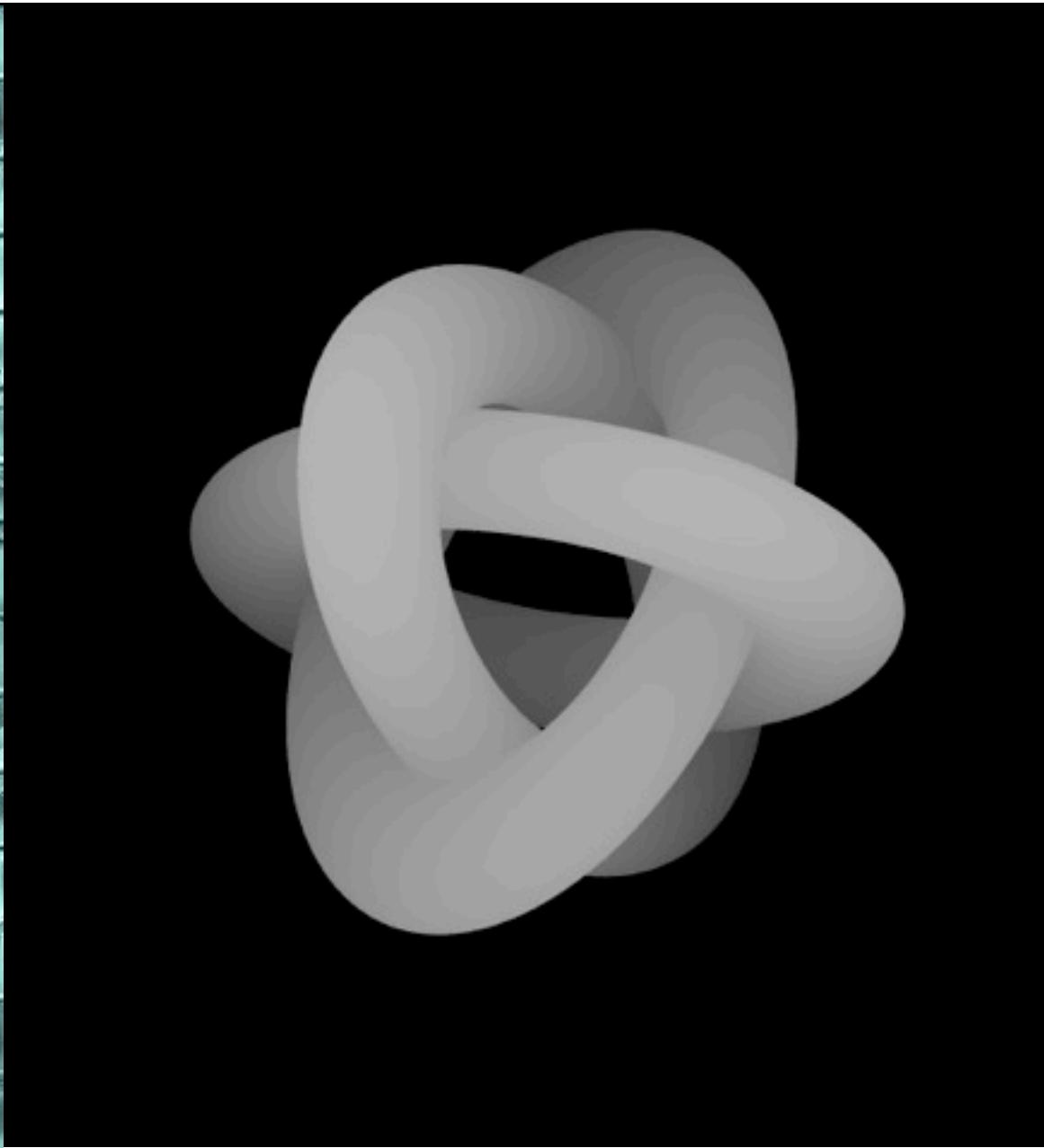
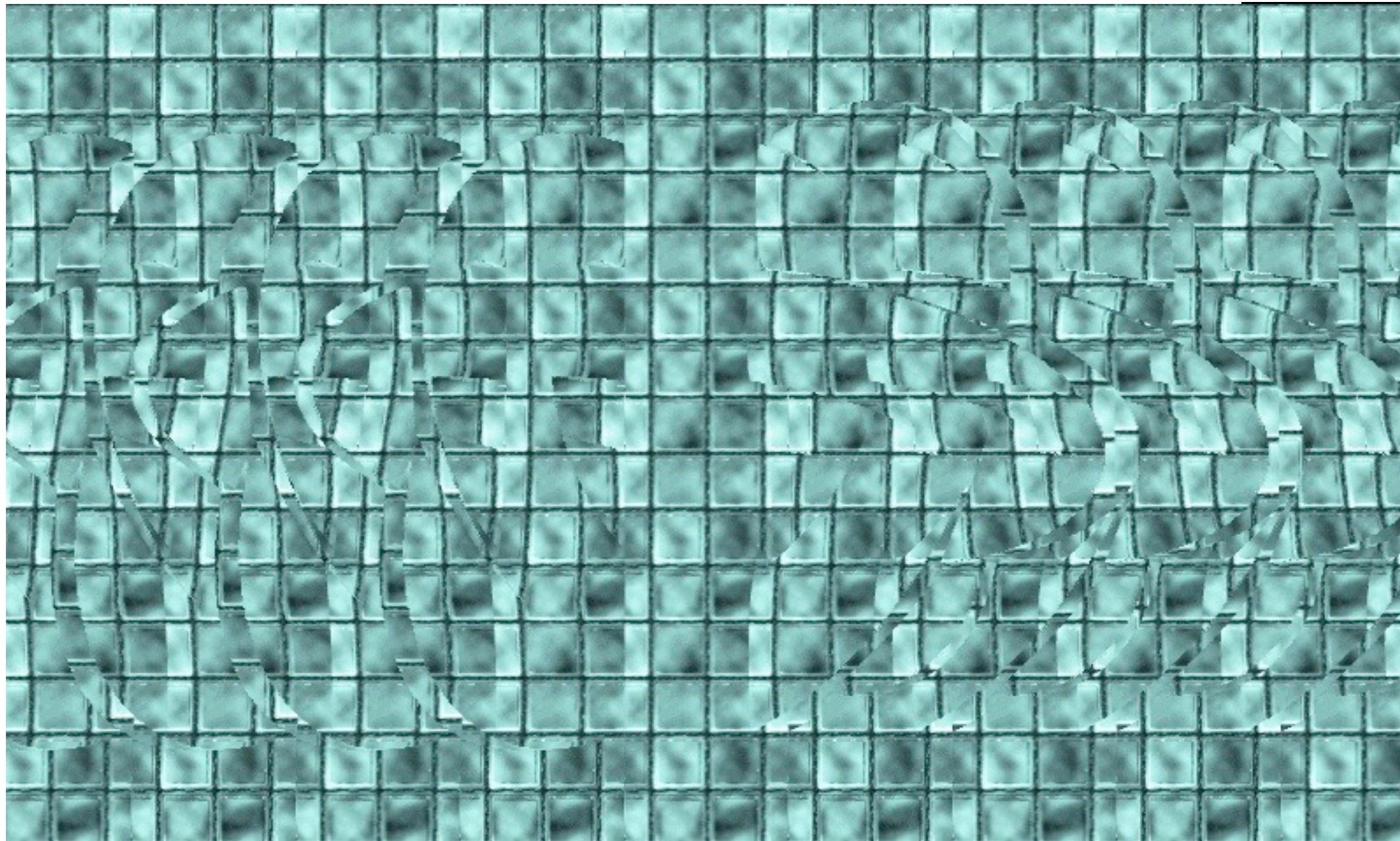


Anaglyphenverfahren



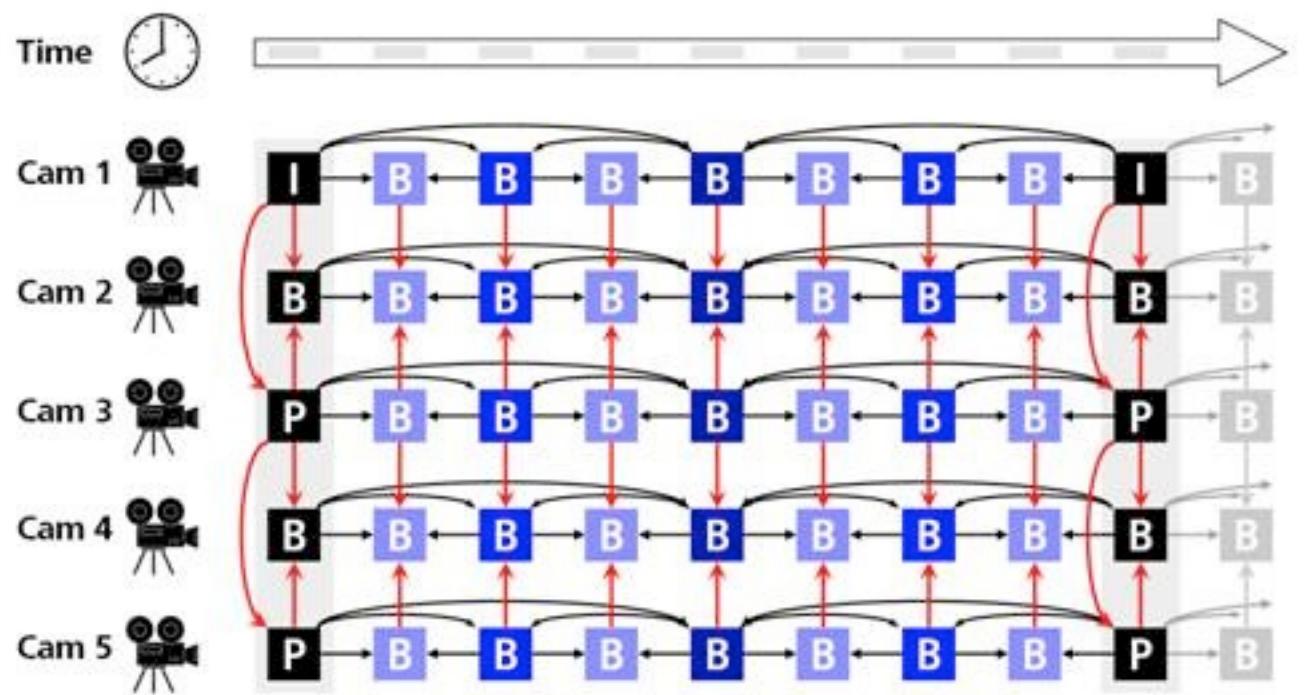
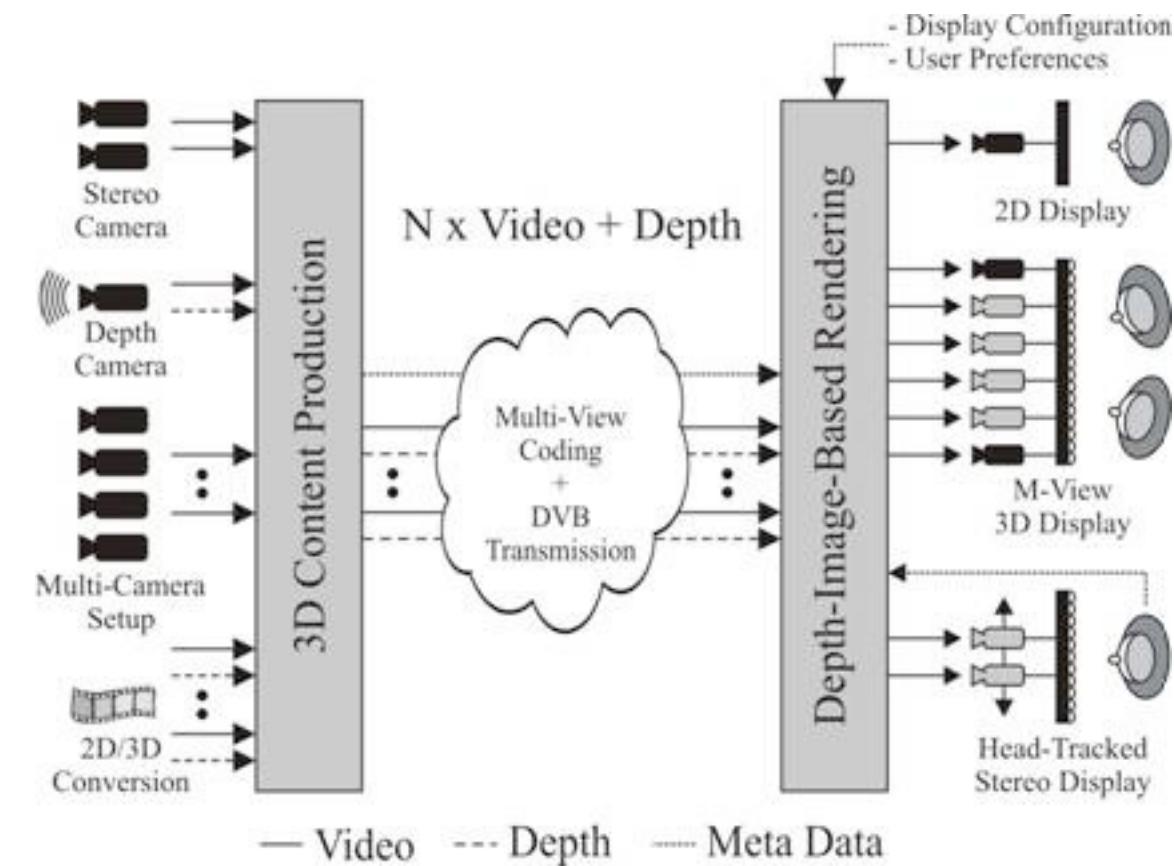
Stereogramme SIRDS

Single Image Random Dot Stereogram



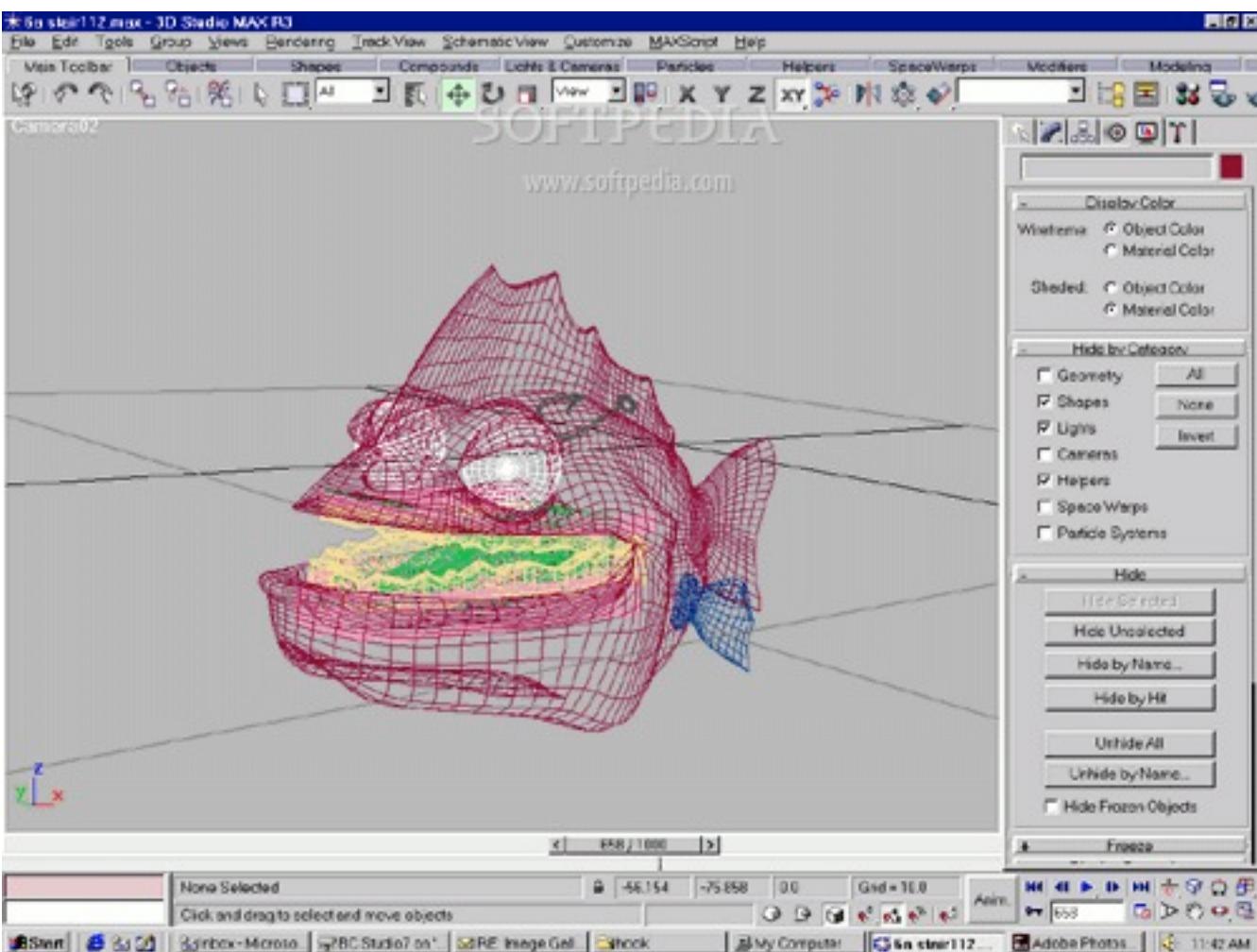
Video-Kompression

Multi View Coding



MPEG4-MVC

Dateiformate

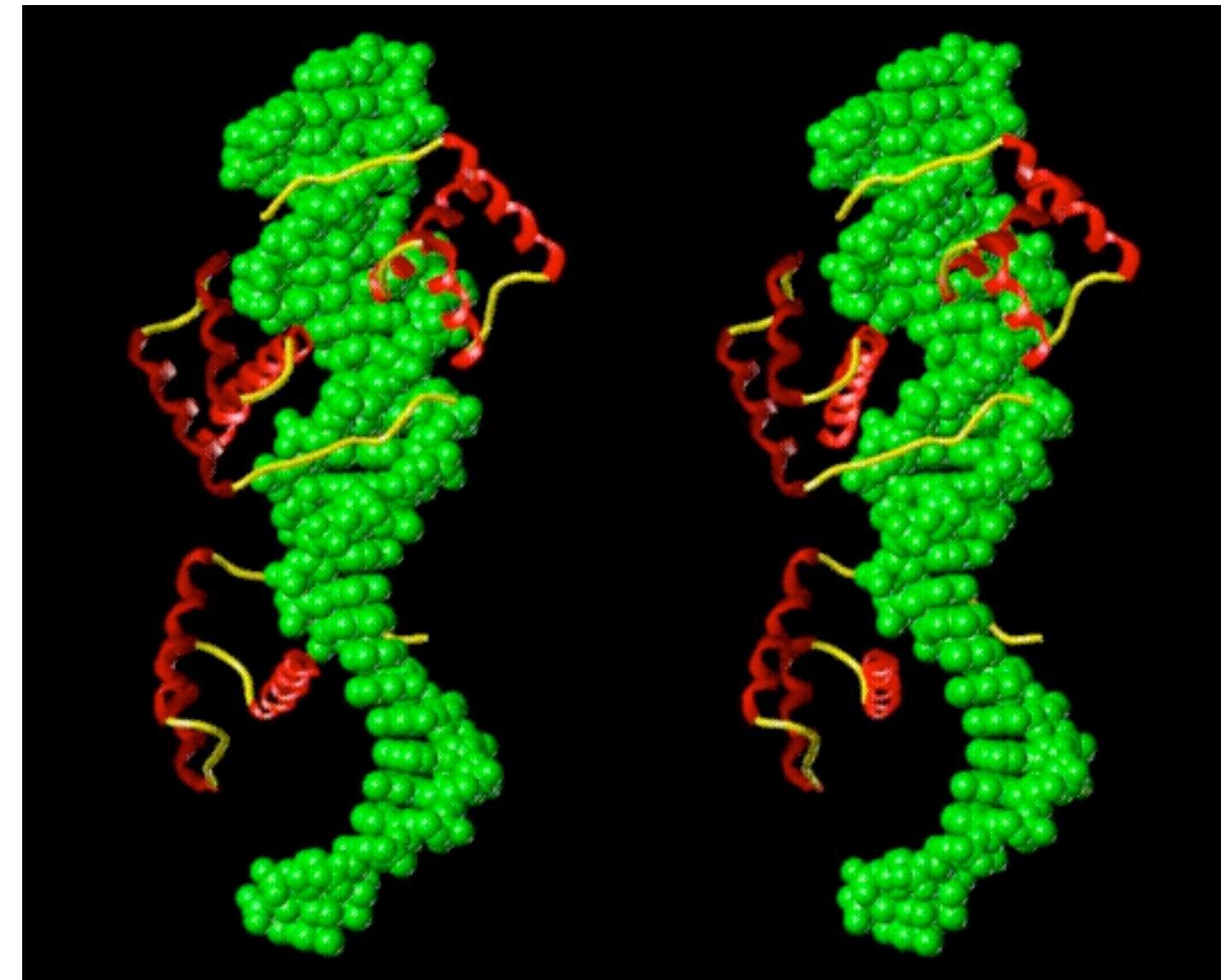
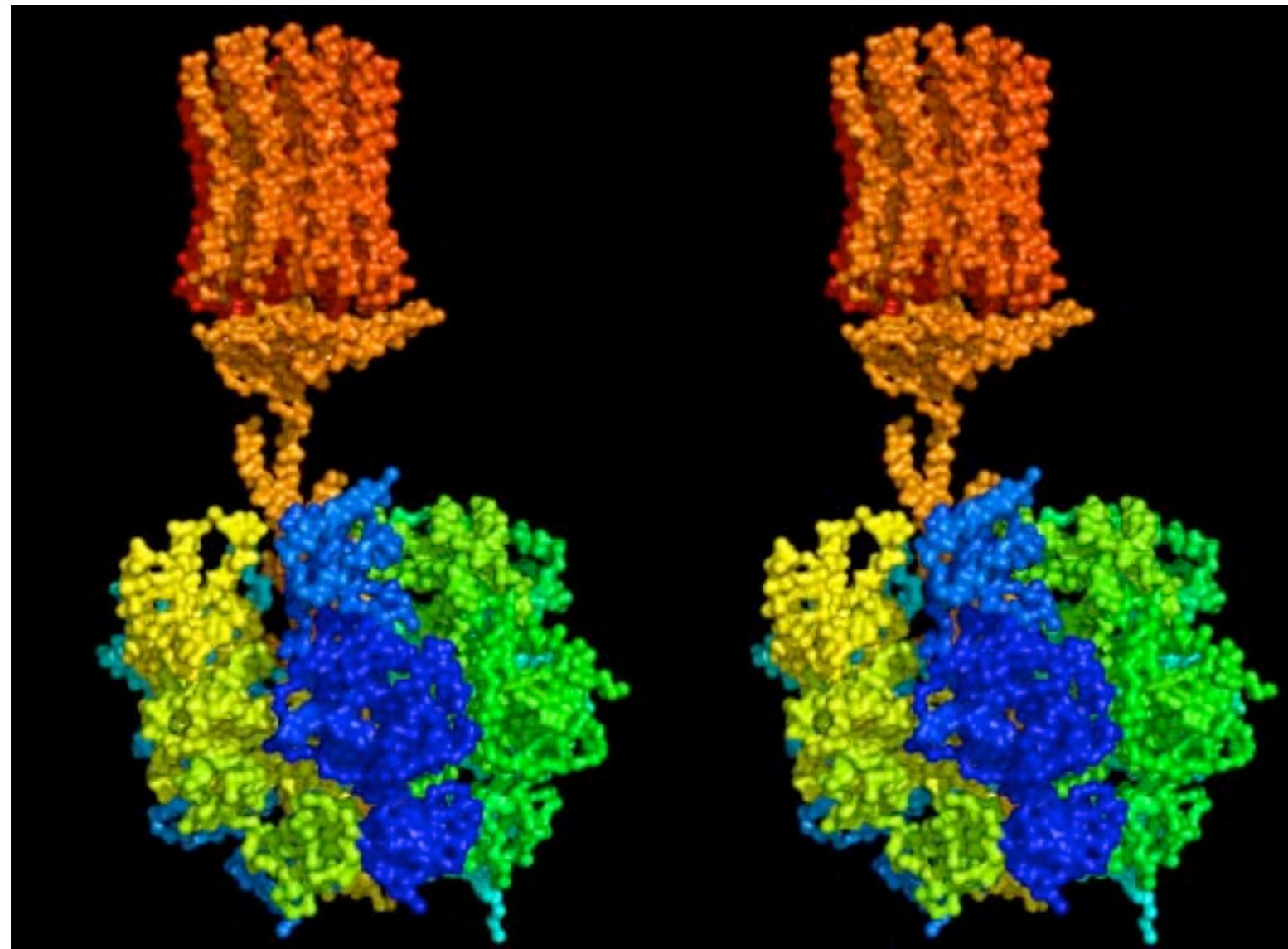


Autodesk (*.FBX)
3D Studio (*.3DS)
Adobe Illustrator (*.AI)
ASCII Scene Export (*.ASE)
Lightscape Material (*.ATR)
Lightscape Blocks (*.BLK)
Autodesk Collada (*.DAE)
Lightscape Parameter (*.DF)
Publish to DWF (*.DWF)
AutoCAD (*.DWG)
AutoCAD (*.DXF)
Motion Analysis HTR File (*.HTR)
IGES (*.IGS)
Lightscape Layers (*.LAY)
Lightscape Preparation (*.LP)
JSR-184 (*.M3G)
gw::OBJ-Exporter (*.OBJ)
StereoLitho (*.STL)
Lightscape View (*.VW)
VRML97 (*.WRL)



3D Anwendungen

Moleküle 3D InSight

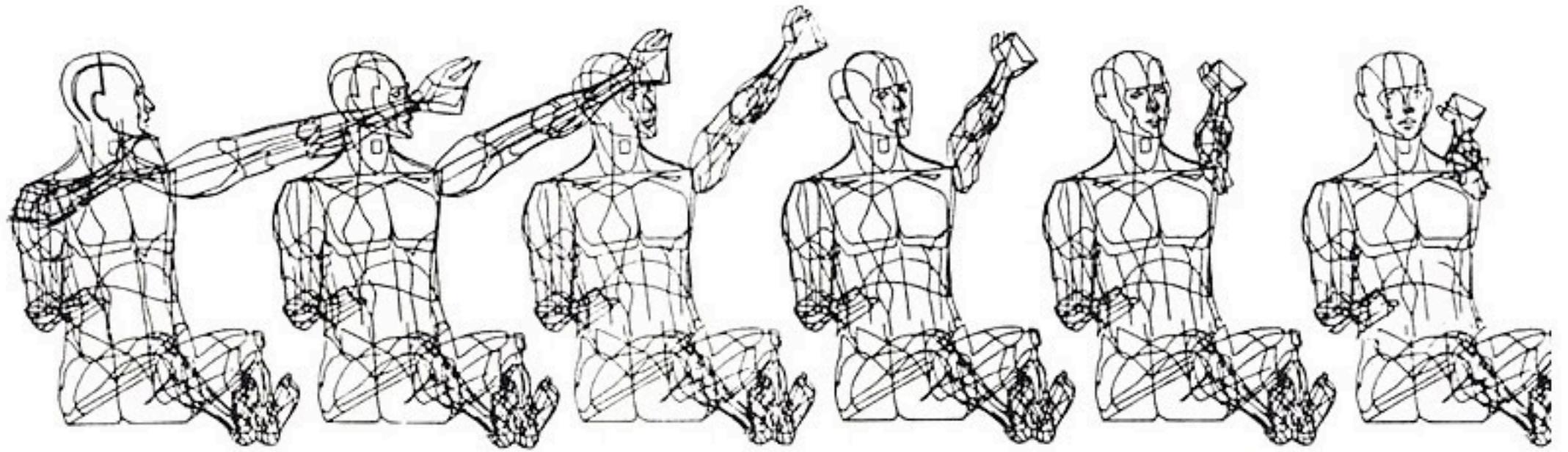


<http://gibk26.bse.kyutech.ac.jp/jouhou/image/dna-protein/all/all.html>

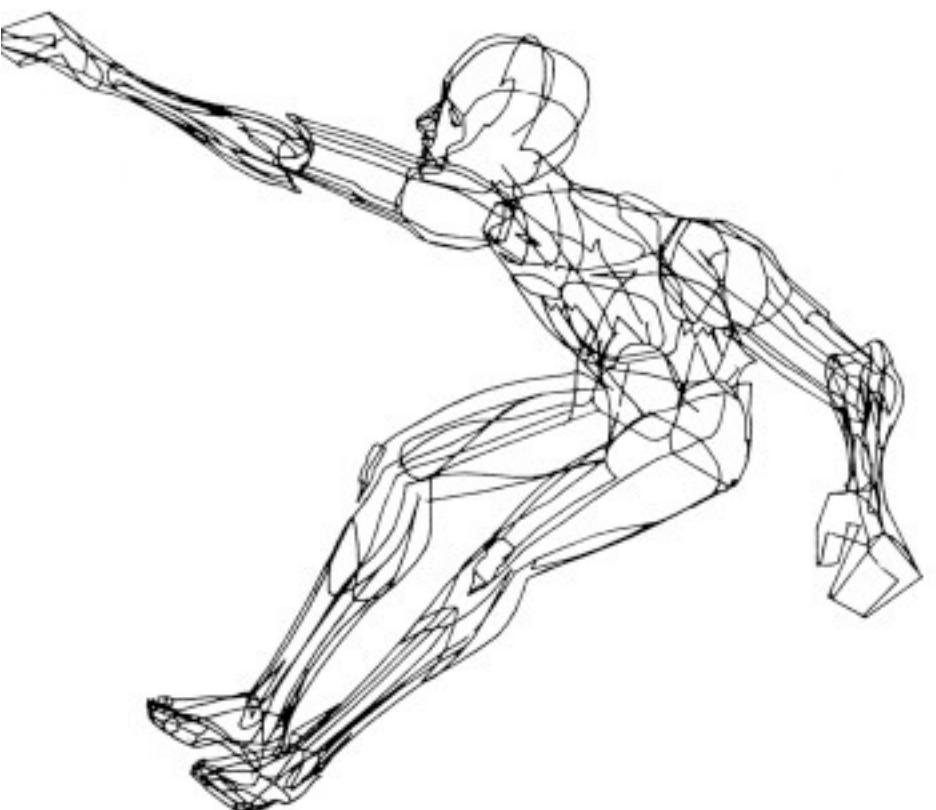
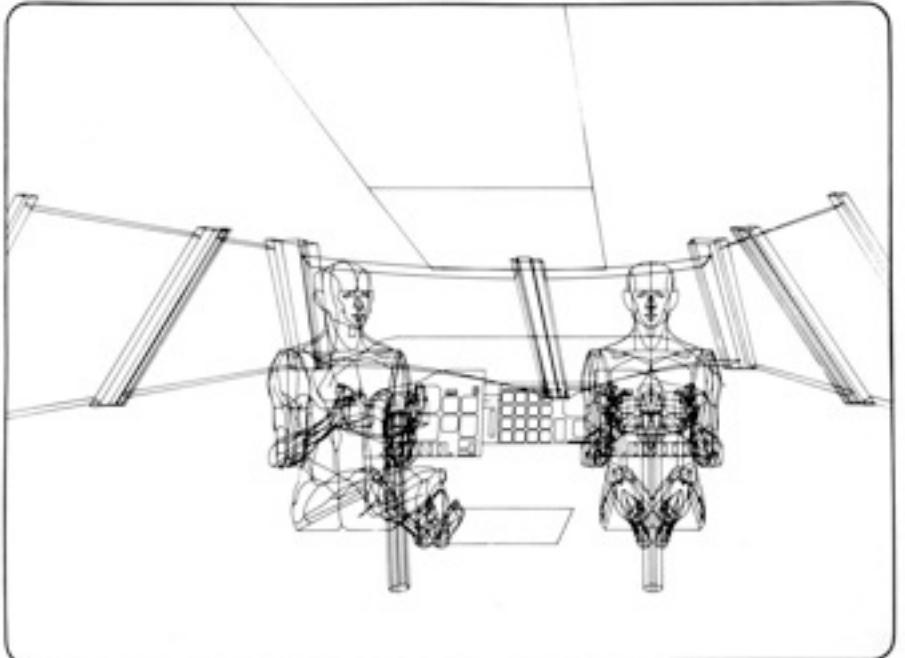
3D Visualisierung



3D Graphics



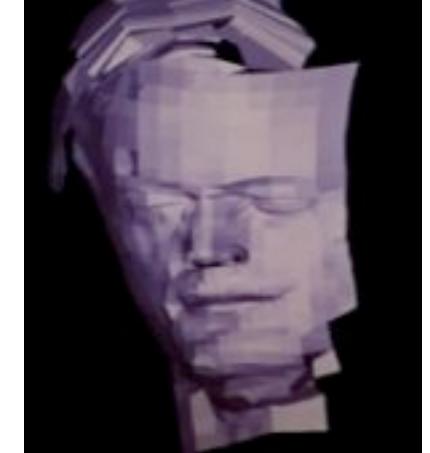
William Fetter, Boeing Men



CAD

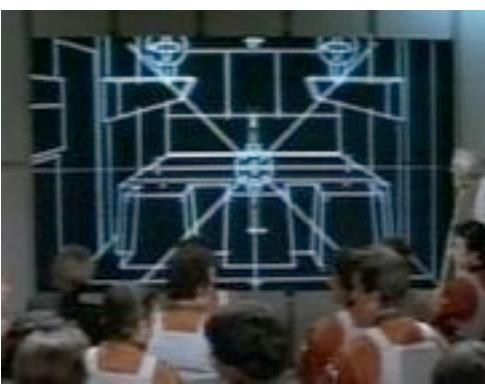


3D CG im Film



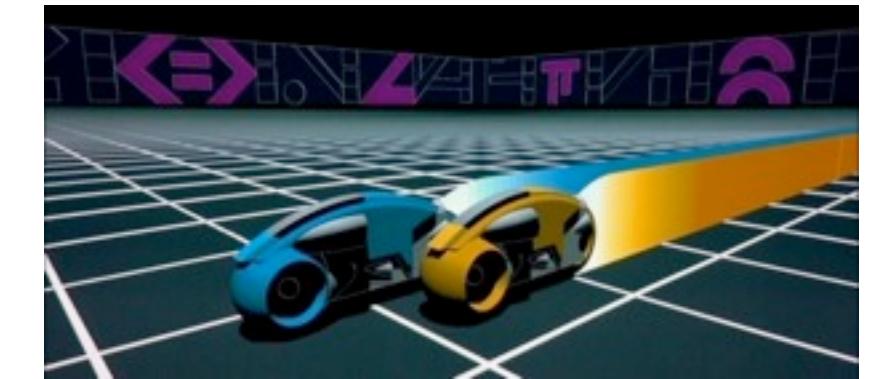
Futureworld

1976



Star Wars

1977



Tron

1982



Young Sherlock Holmes

1985



Abyss

1989



Terminator 2

1991



Toy Story

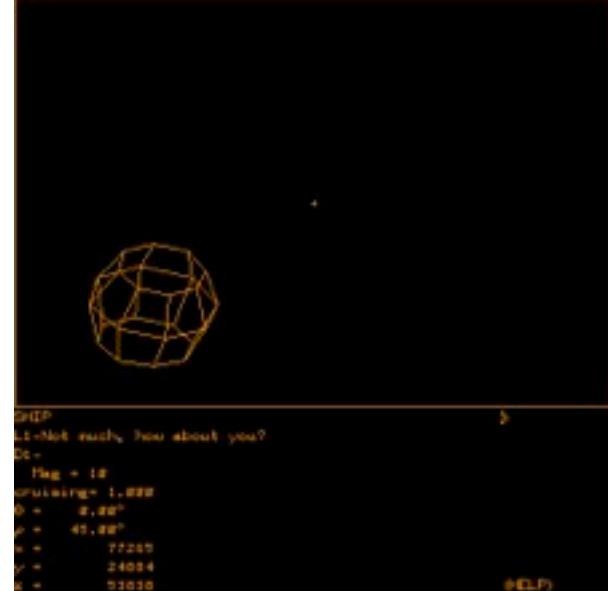
1995

Final Fantasy

2001

Avatar

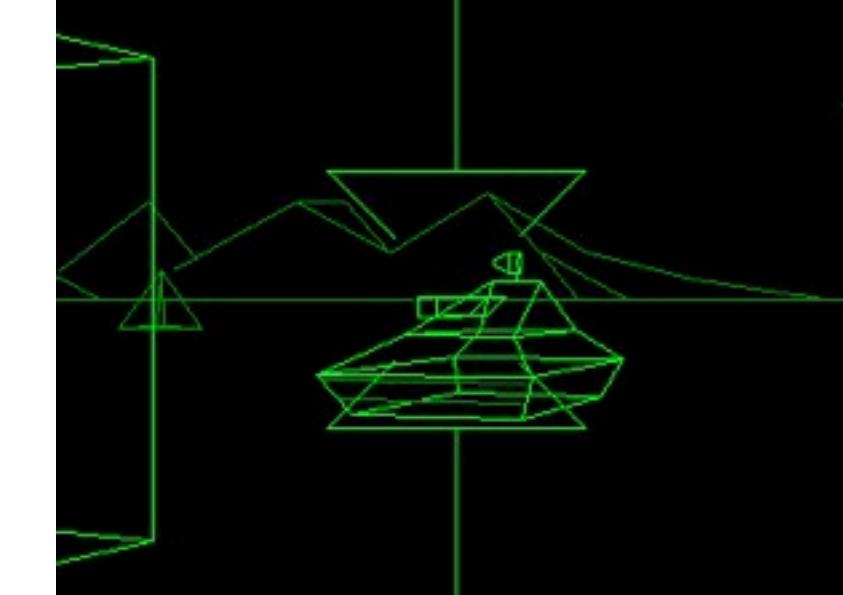
2009



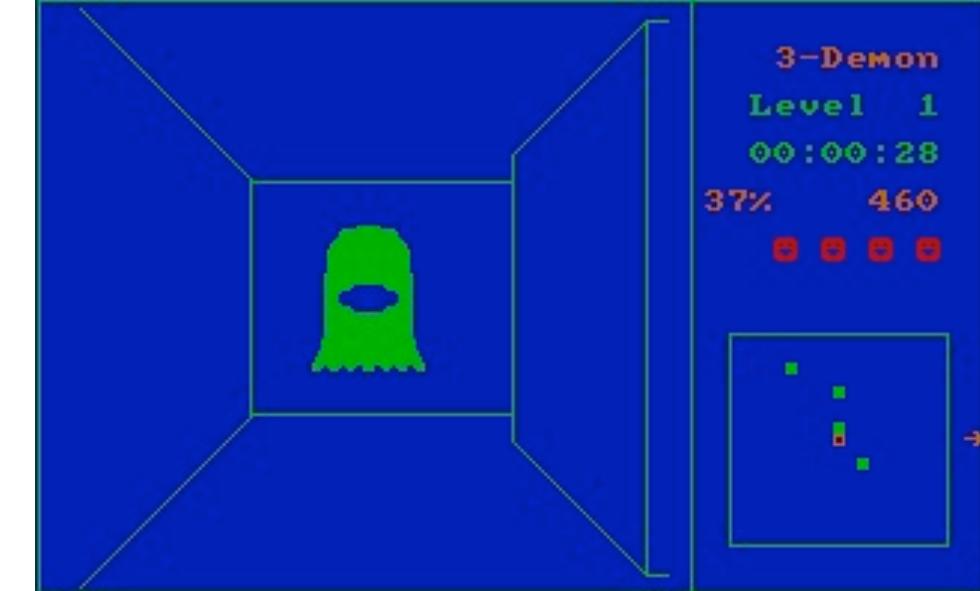
Vektorgrafik: Spasim, 1974



Vektorgrafik: Maze War, 1974



Vektorgrafik: Battlezone, 1980



3-Demon, 1983



Gefüllte Polygone: I, Robot, 1983



Sprite Scaling, Space Harrier 1985



Ego Shooter: Aliens, 1986

3D Computerspiele



LAN: MIDI Maze, 1987



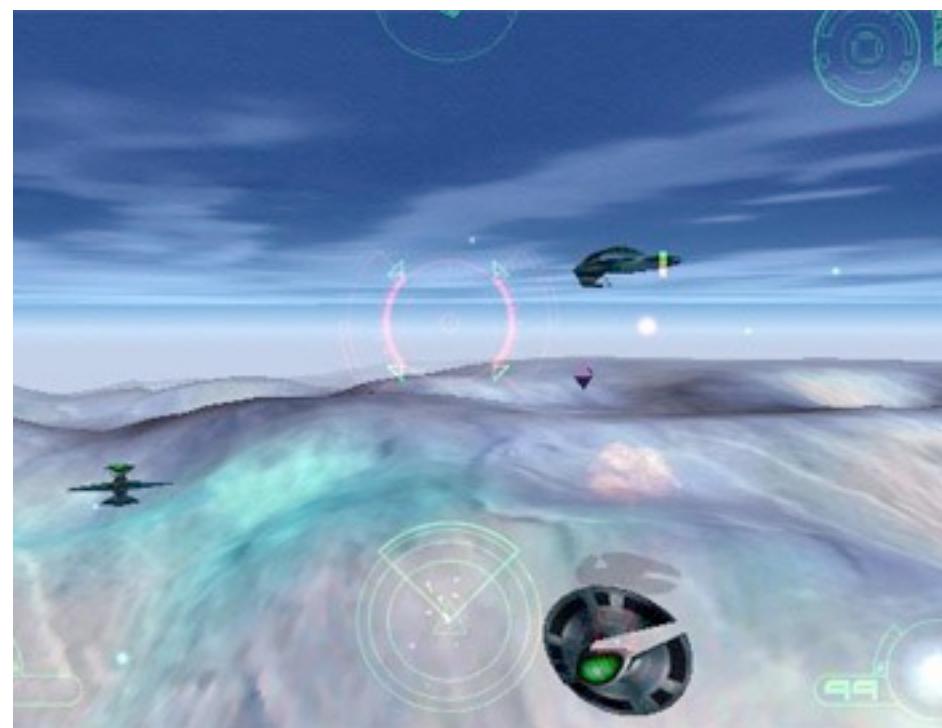
Ego-Shooter: Wolfenstein, 1992



Gouraud Shading: Star Wars TIE Fighter, 1994



Texture Mapping: Descent, 1995



MIP Mapping: Incoming, 1998



Phong Shading: Space Channel 5, 1999



Ray Casting: Doom, 1993



Realtime Lighting: Quake, 1996



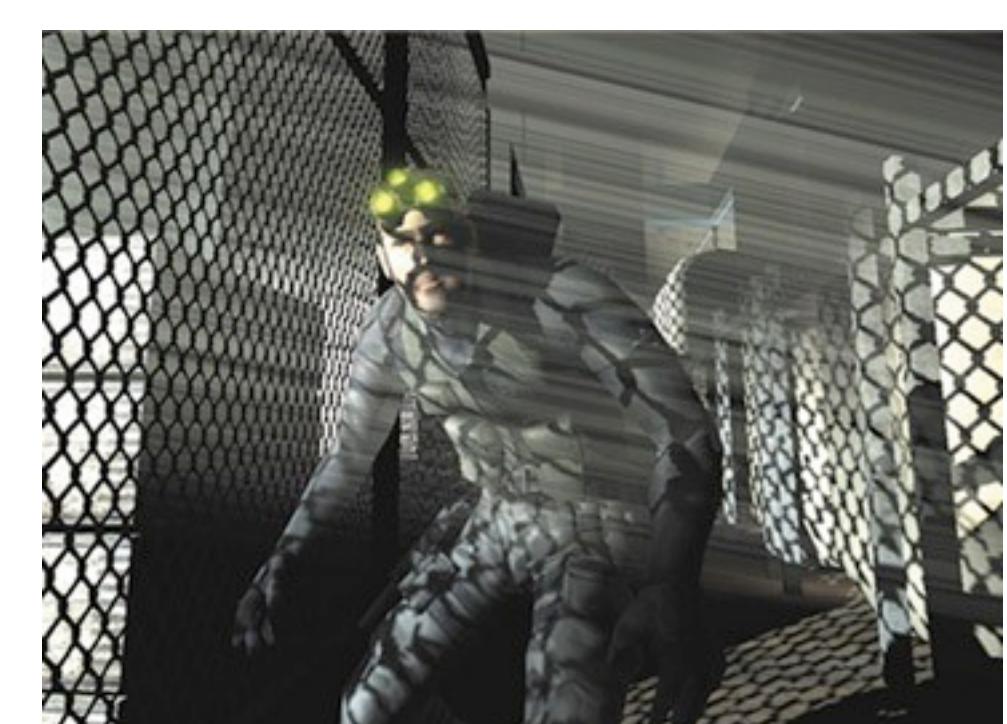
Z-Buffering: Super Mario 64, 1996



Parametric Surface: Quake III, 1999



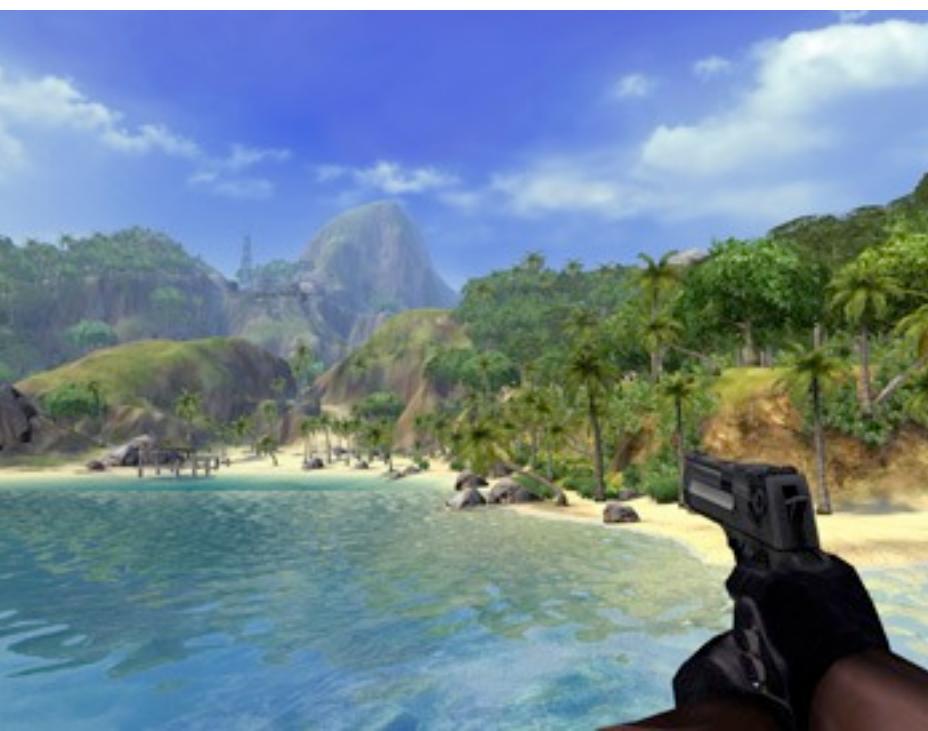
Post Processing: Prince of Persia:
The Sands of Time, 2003



Realtime Shadow: Splinter Cell, 2002



Normal Mapping: Doom III, 2004



Level of Details: Far Cry, 2004



HDR Rendering: Half Life 2, 2004



Impostors: Kameo, 2005



Parallax Mapping: Oblivion, 2006

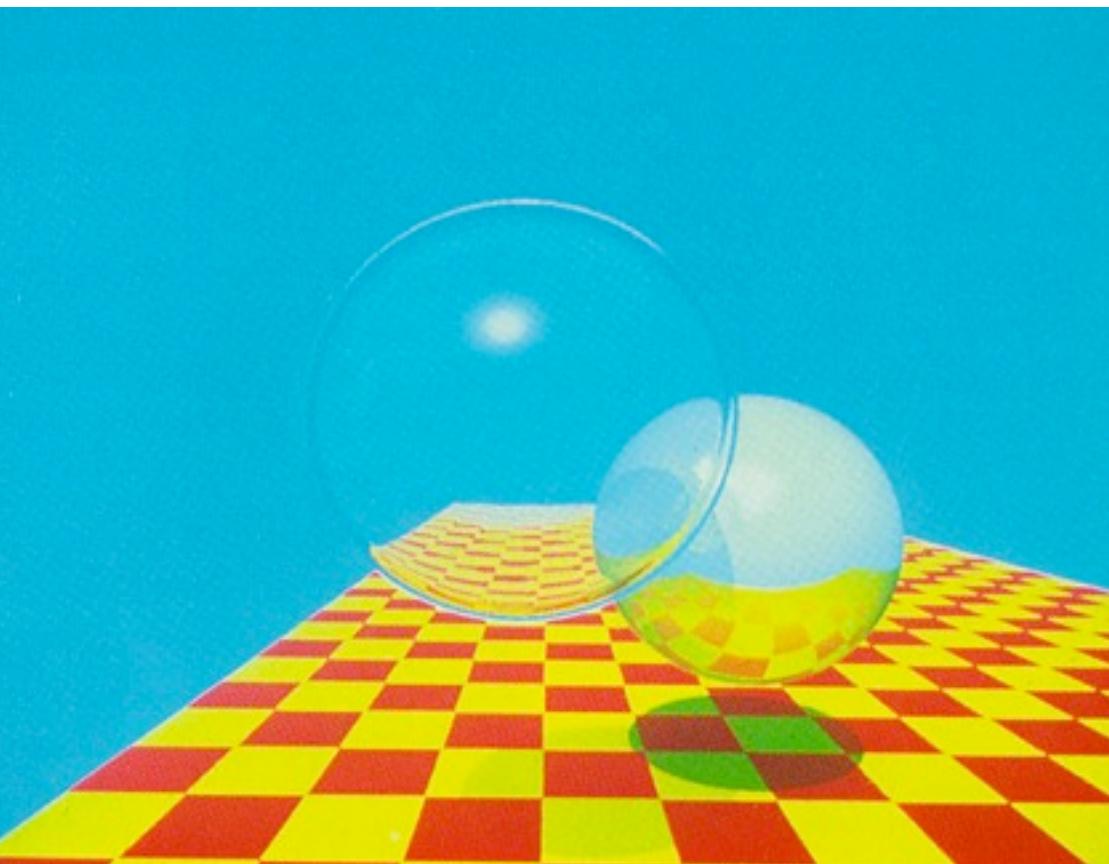


Global Illumination: Halo III, 2007

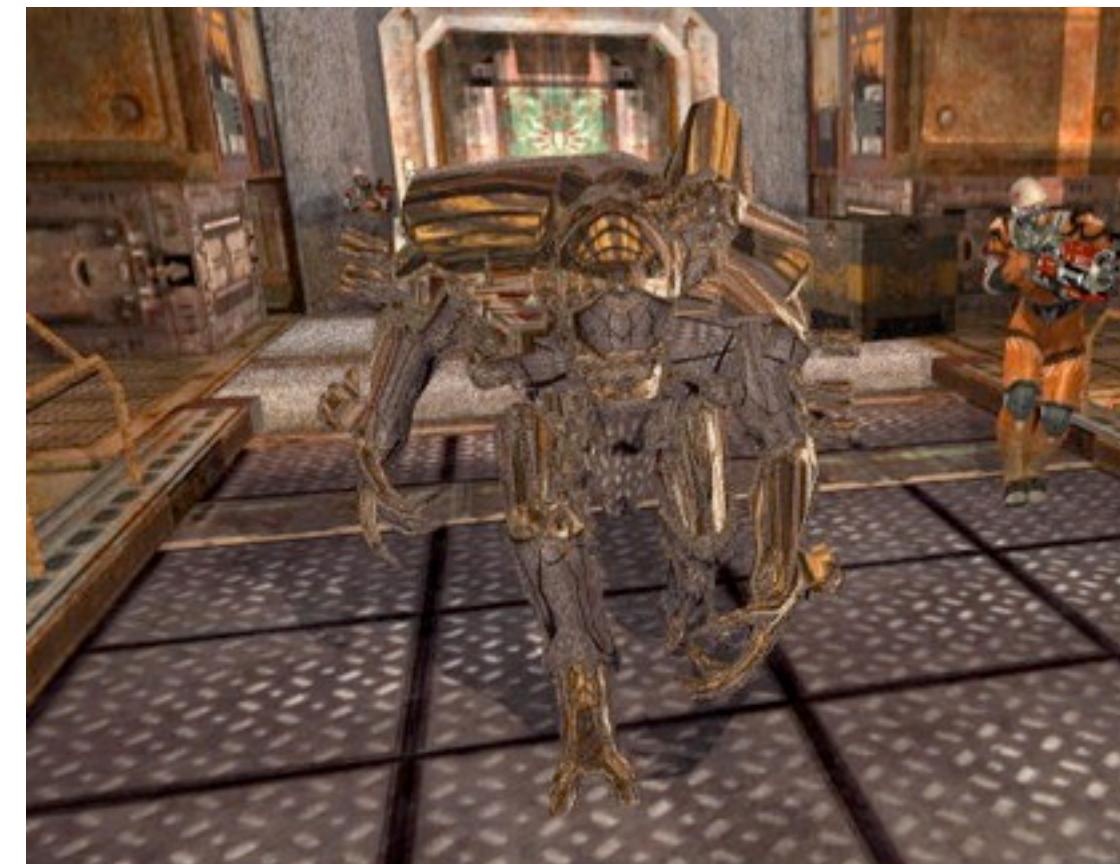
Ray-Tracing



Albrecht Dürer, 1538



Turner Whitted, 1980

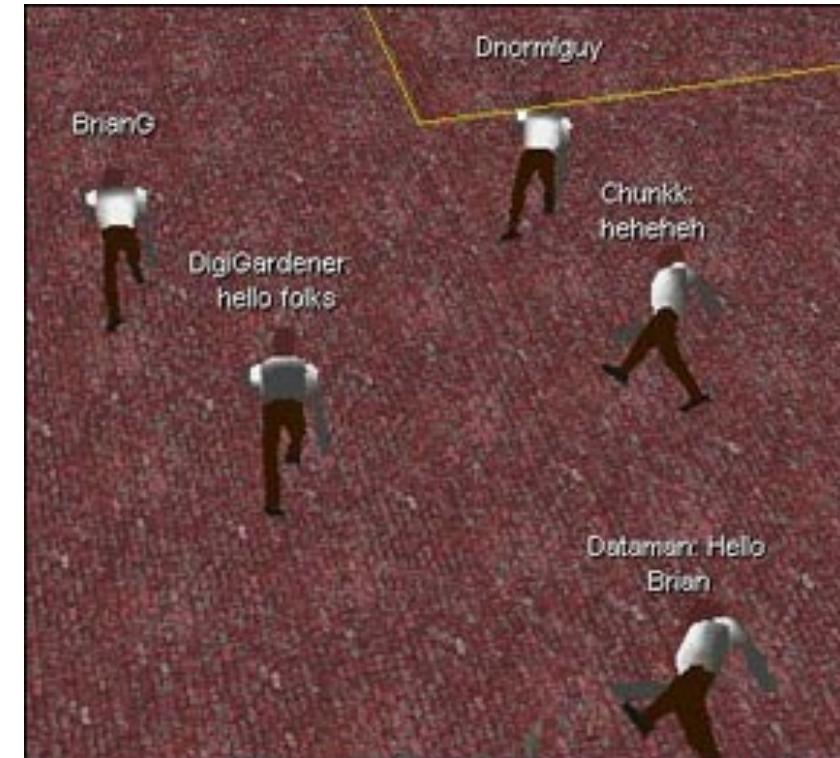


Quake 4, raytraced, 2007

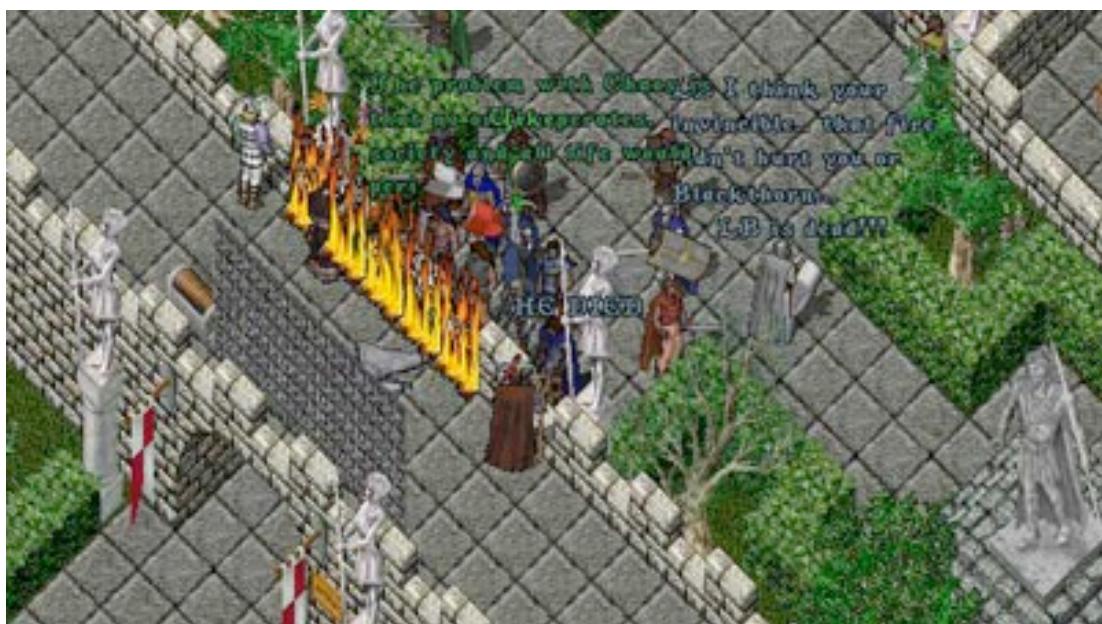
Soziale Netze



Worlds Chat 1995



Alphaworld 1995-1998



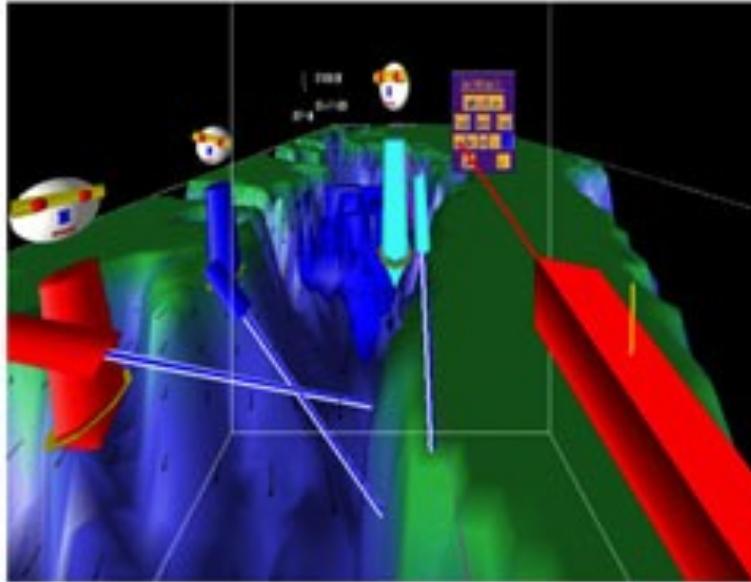
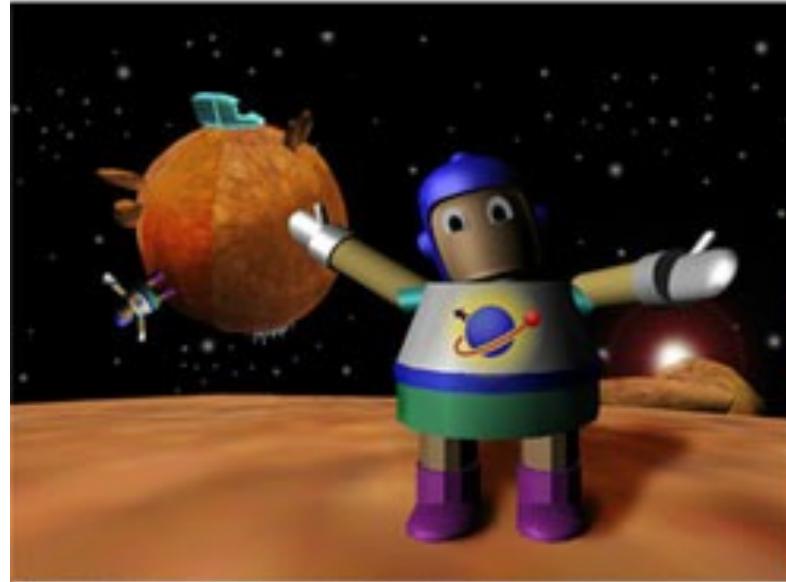
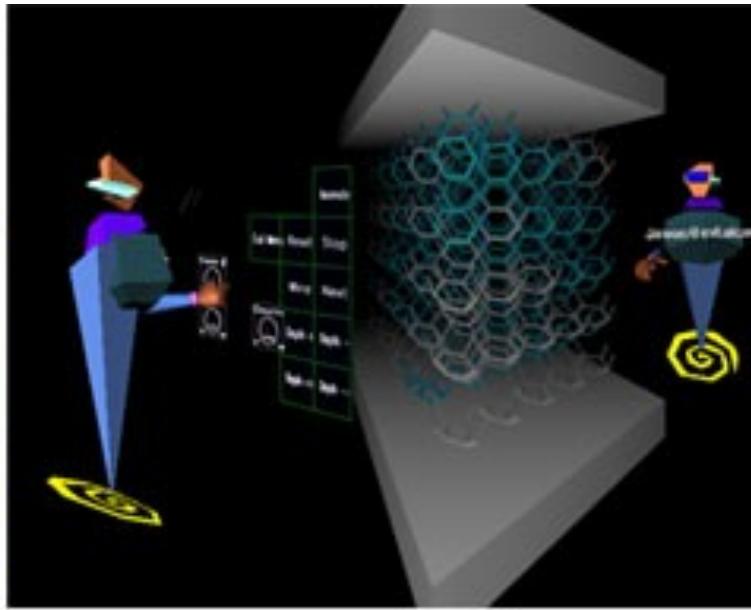
Ultima Online 1997



Second Life 2003



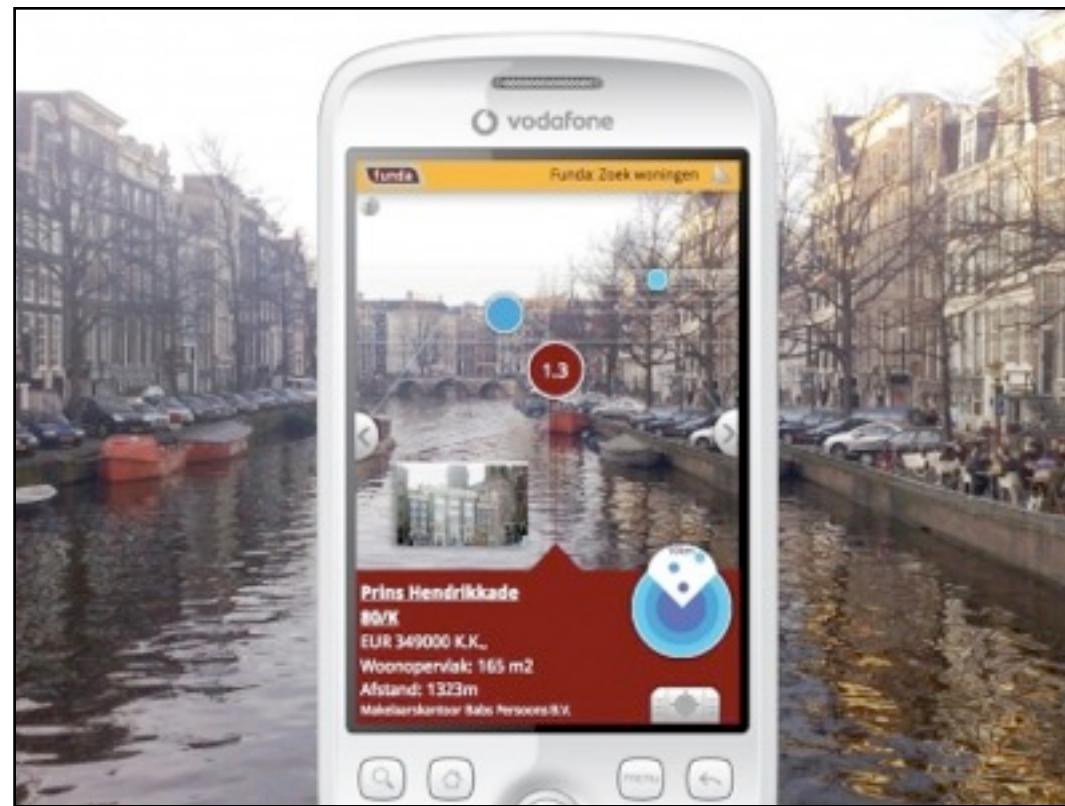
Augmented Reality



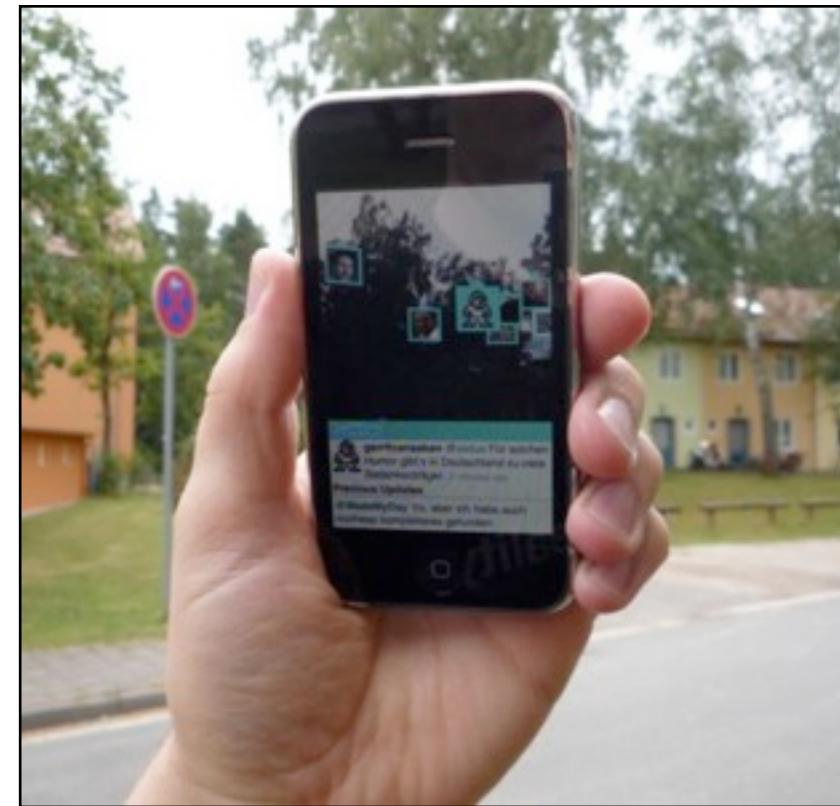
Mobile AR



Wikitudo



Layar



TwittARound

AR Spiele



AR Quake



Invizimals

3D im Web

VRML

Google Earth

Second Life

Aber auch:

.3D · .3DF · .3D Flash · .3DMLW · .3DXML ·
Asymptote · COLLADA · DWF · eDrawings ·
HSF · IGES · IPA · JT · PRC · STEP · STL ·
U3D · VRML · X3D · XAML · Xgl · XVL · xVRML





3D Wiedergabe (Stereoskopie)

Holographie (Computer Generated Holography)

Anaglyph Rot/Grün

Polarisation

Stereogramm

Shutterbrillen (XpanD, NVidia 3D Vision, Acer DLP-Link)

Autostereoskopie (HII)

Interferenzfilter (Infitec, Dolby 3D)

Analog 3D



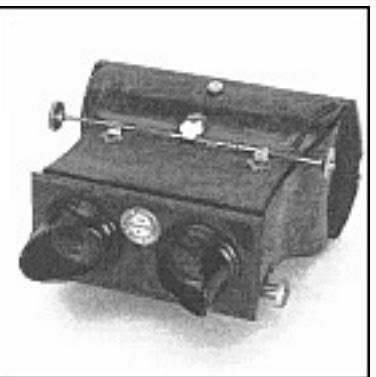
Höhlenmalerei



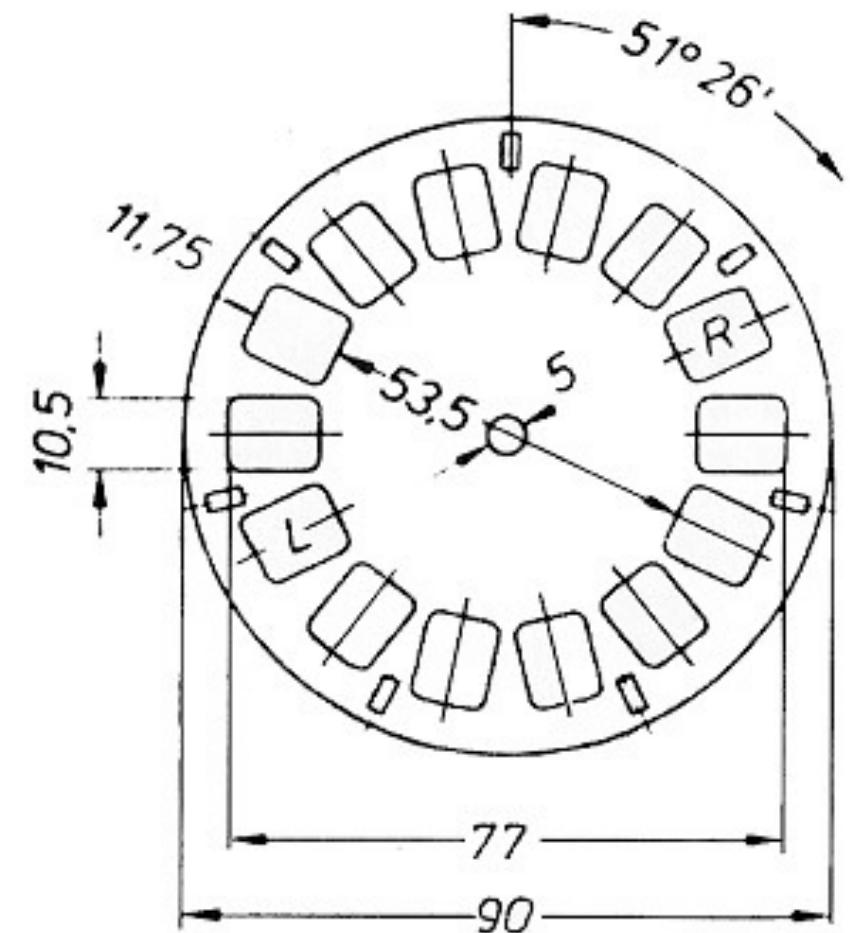
Laokoon-Gruppe



Trajan-Säule



Viewmaster



Sensorama



Introducing . . .

sensorama

The Revolutionary Motion Picture System
that takes you into another world
with

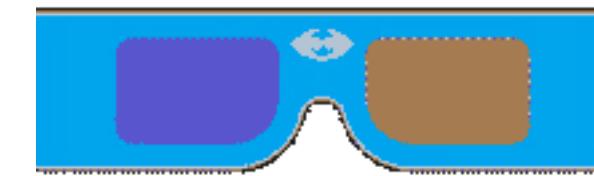
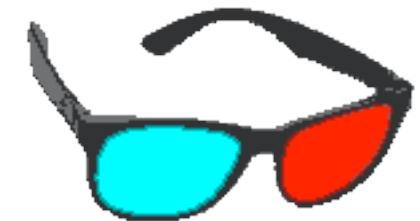
- 3-D
- WIDE VISION
- MOTION
- COLOR
- STEREO-SOUND
- AROMAS
- WIND
- VIBRATIONS



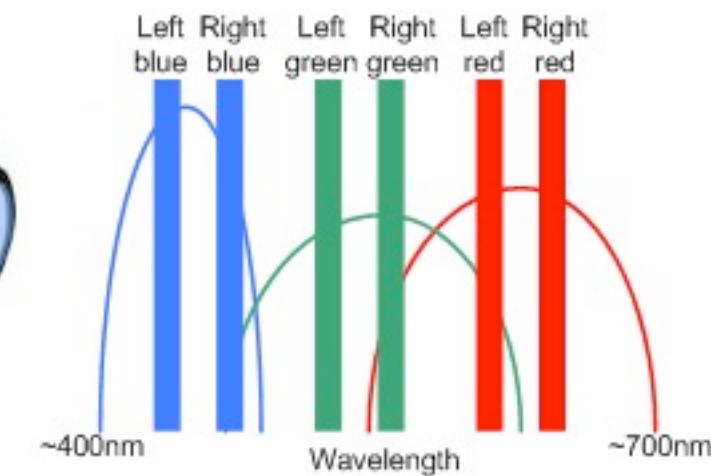
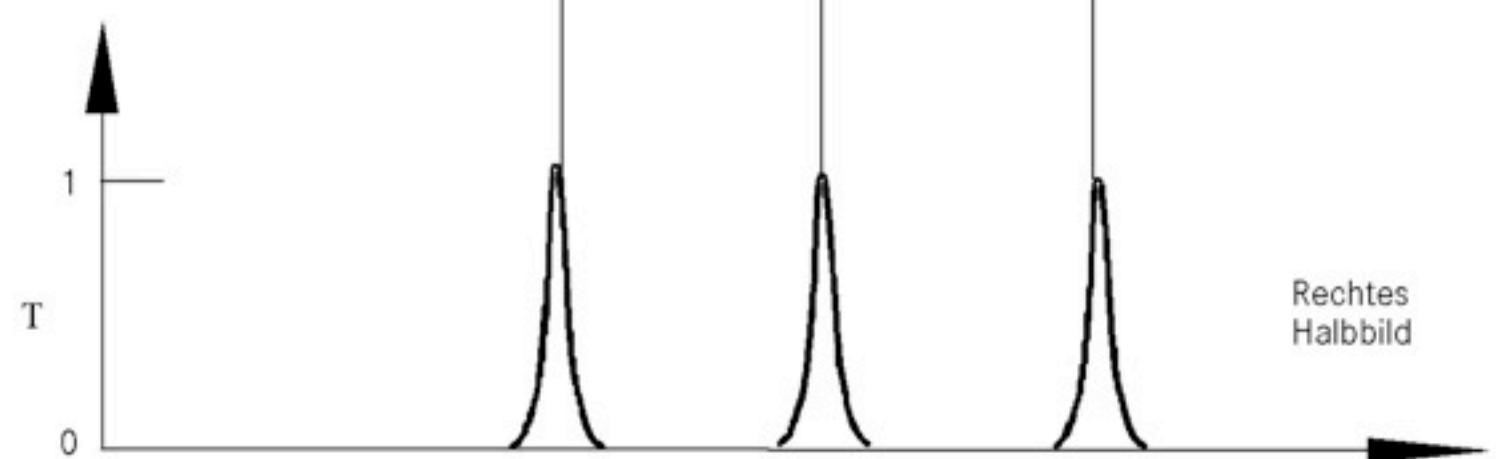
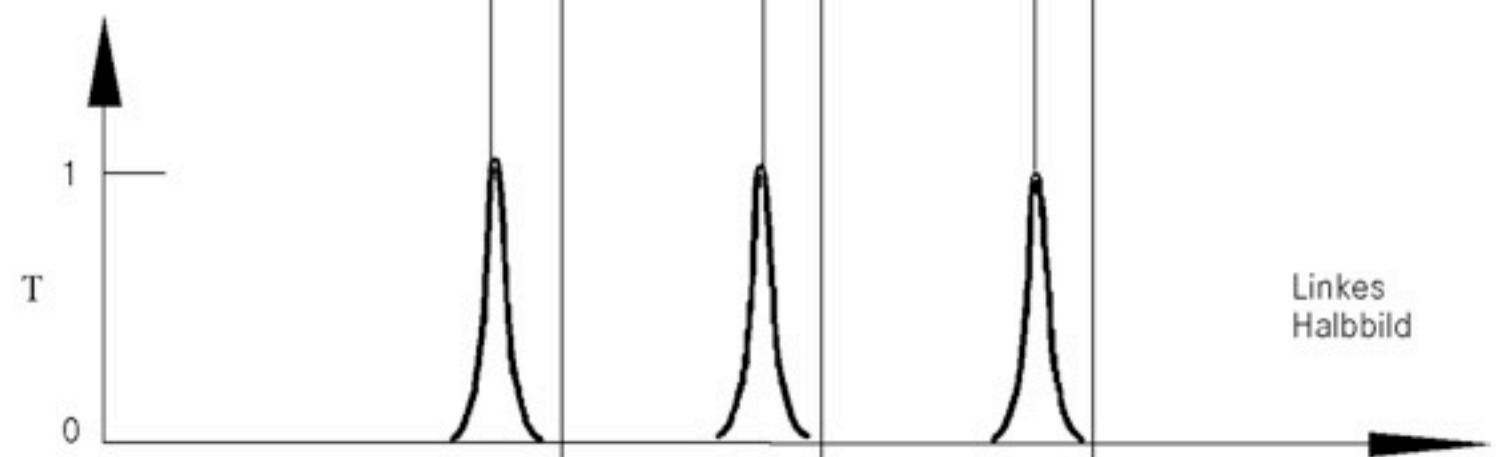
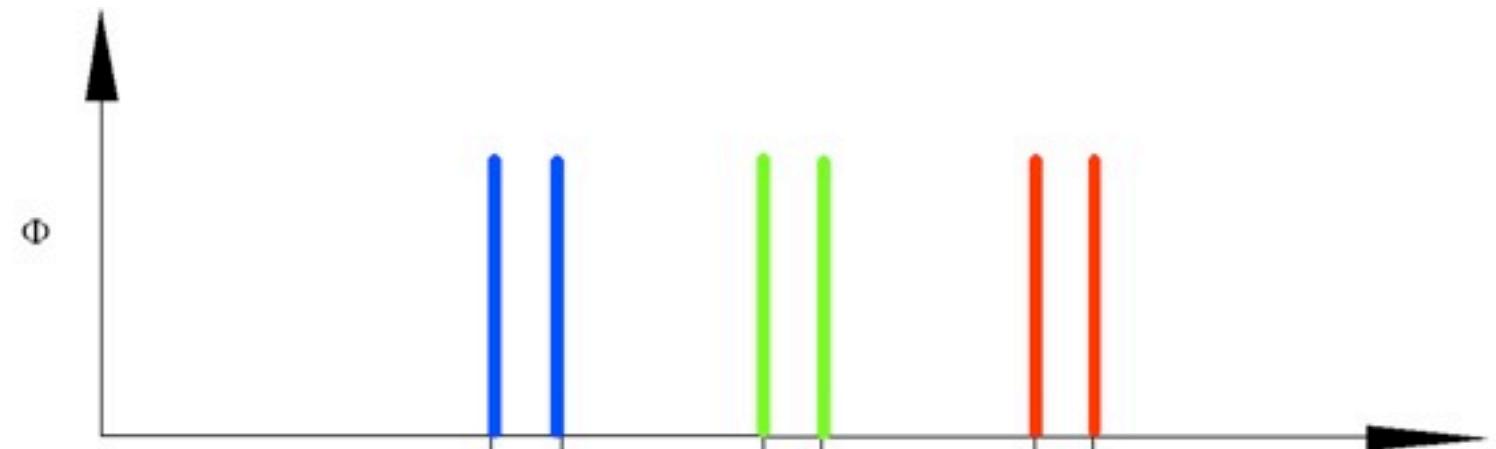
SENSORAMA, INC., 855 GALLOWAY ST., PACIFIC PALISADES, CALIF. 90272

TEL. (213) 459-2162

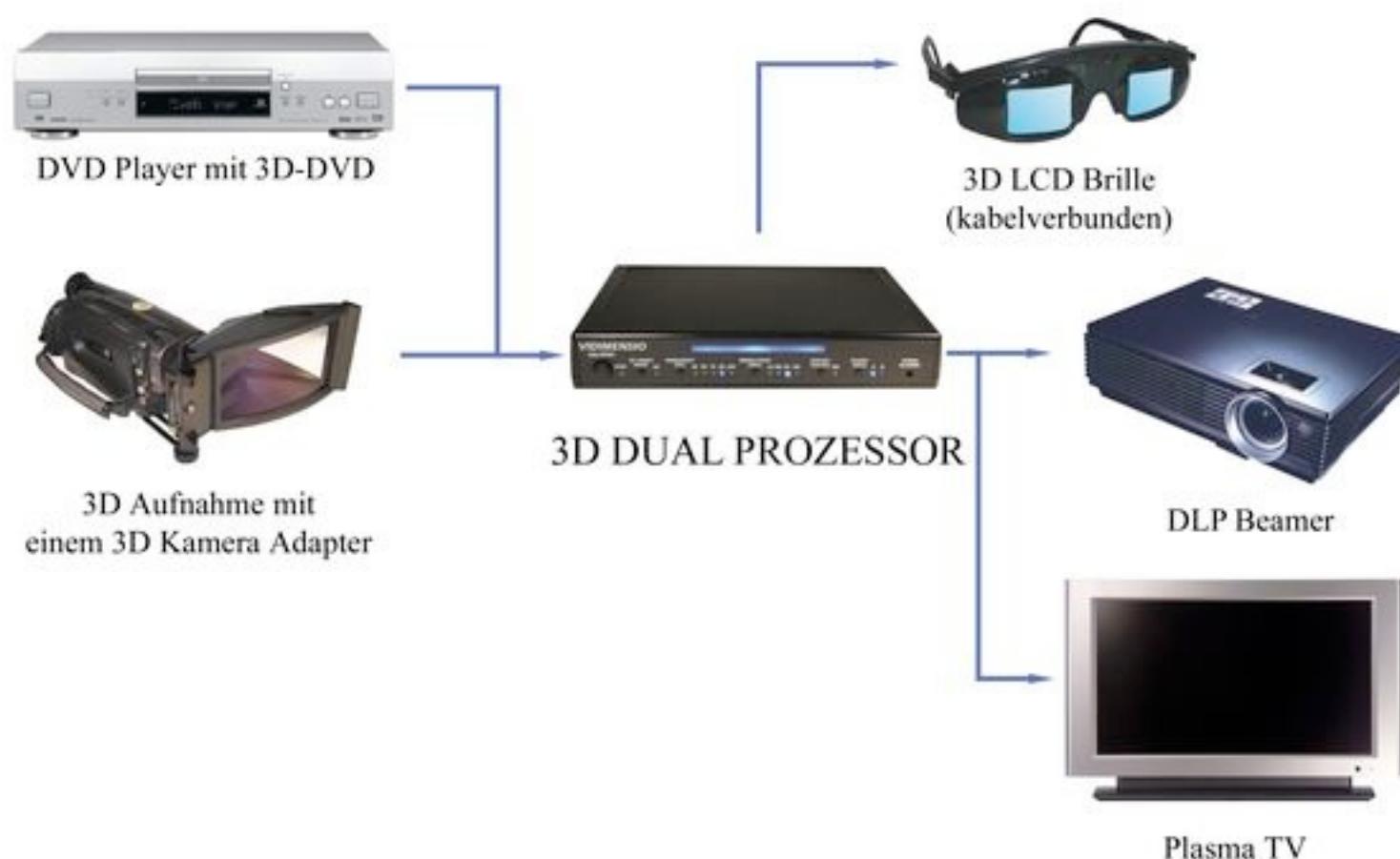
Anaglyphische Bilder



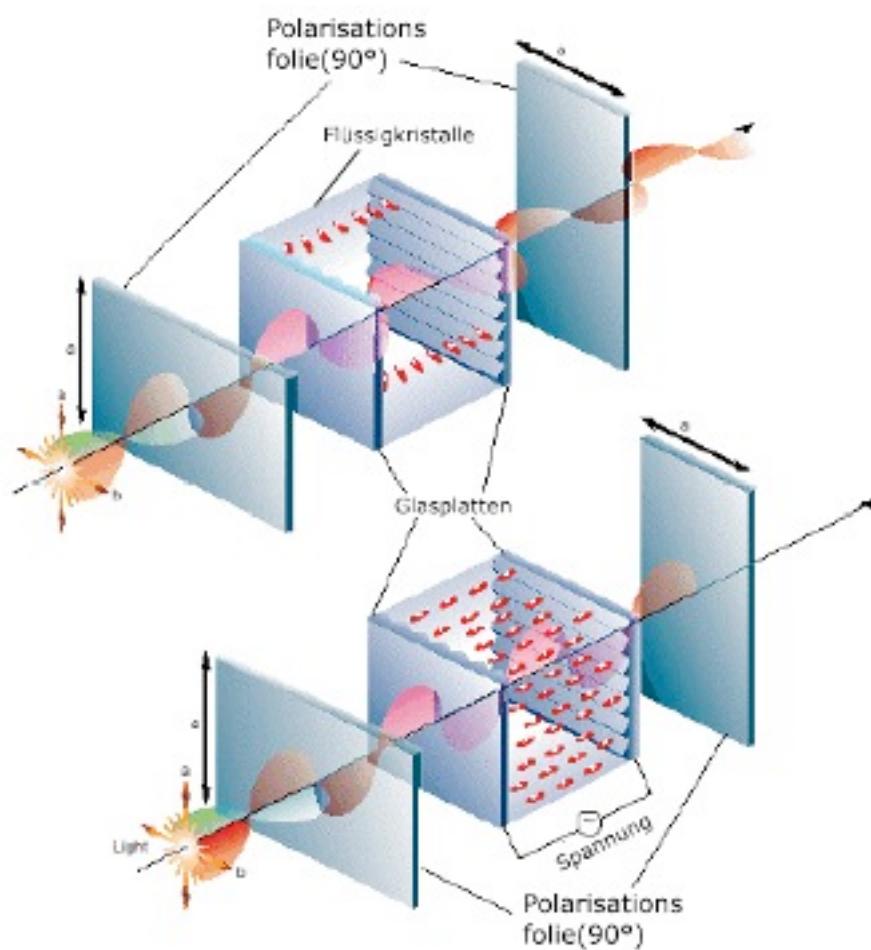
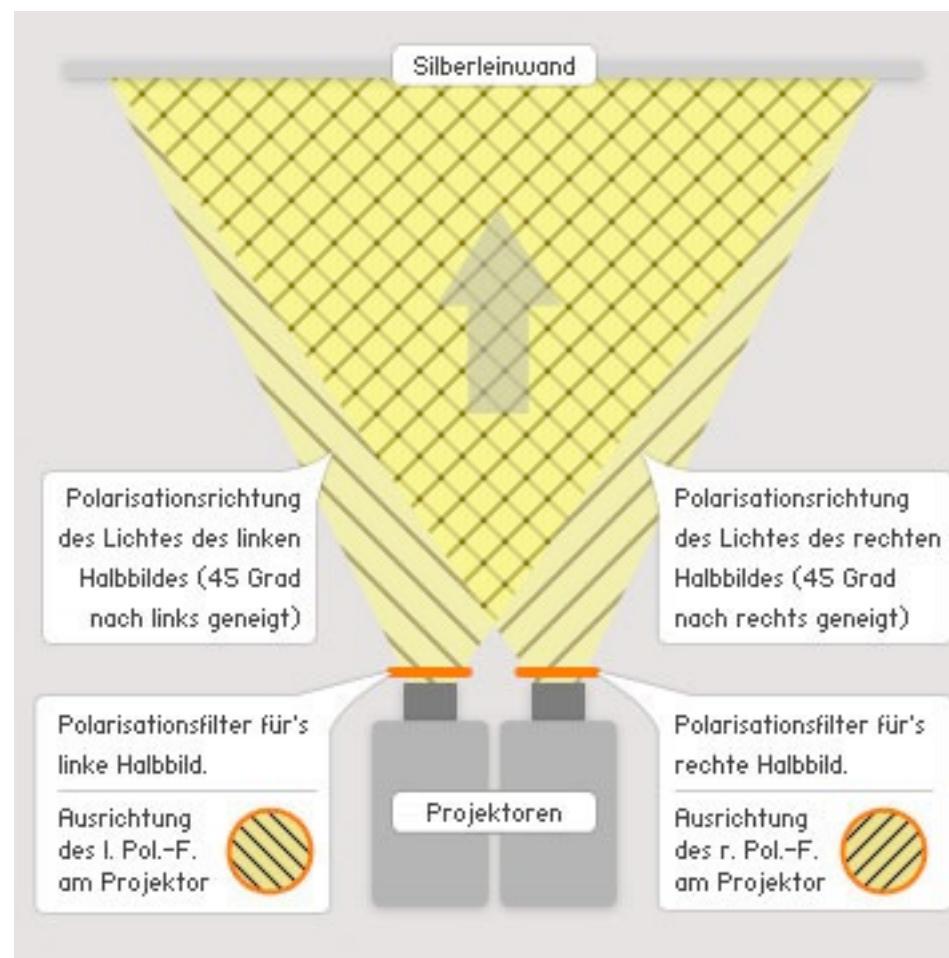
Infitec Dolby 3D



Shutterbrille



Polarisation

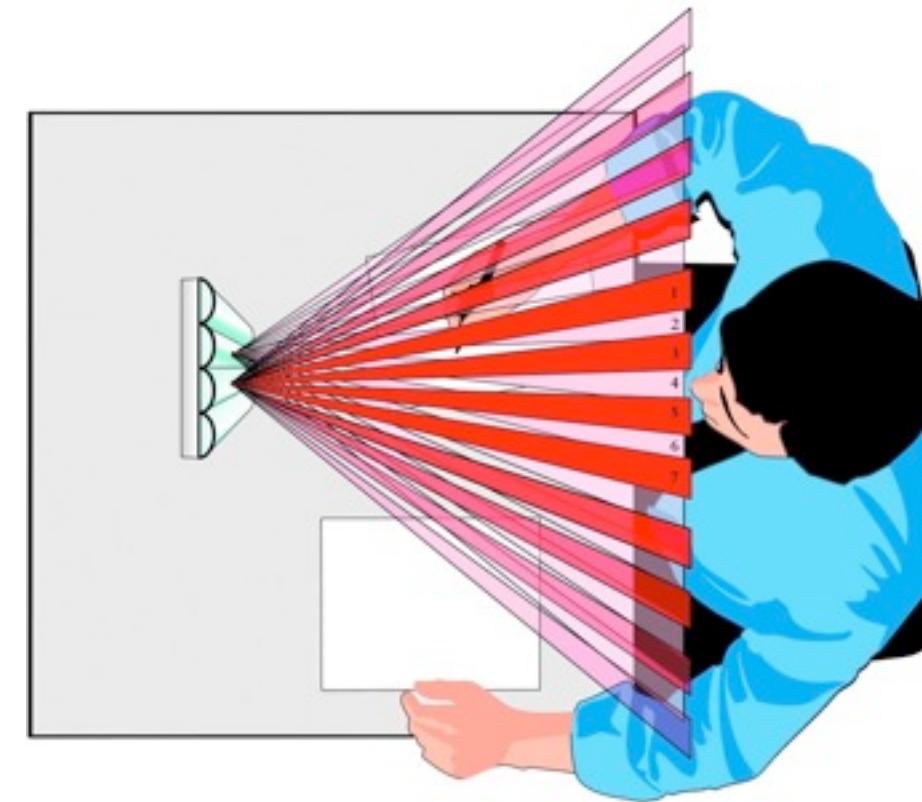
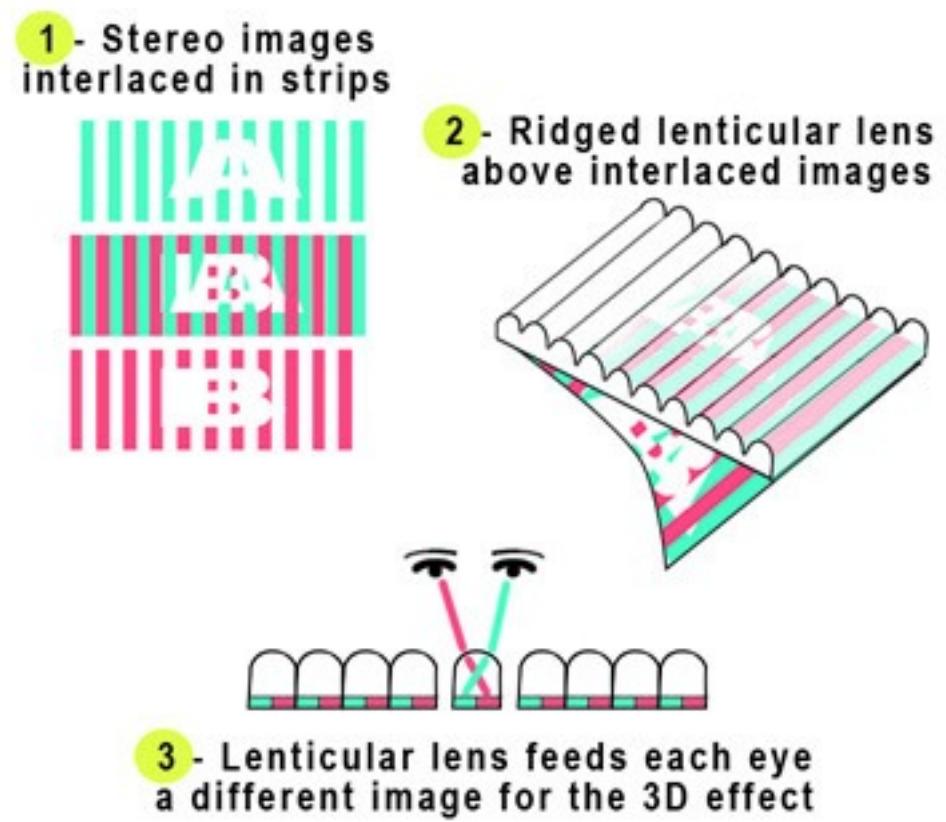


Stereoskopische Brille (HMD)

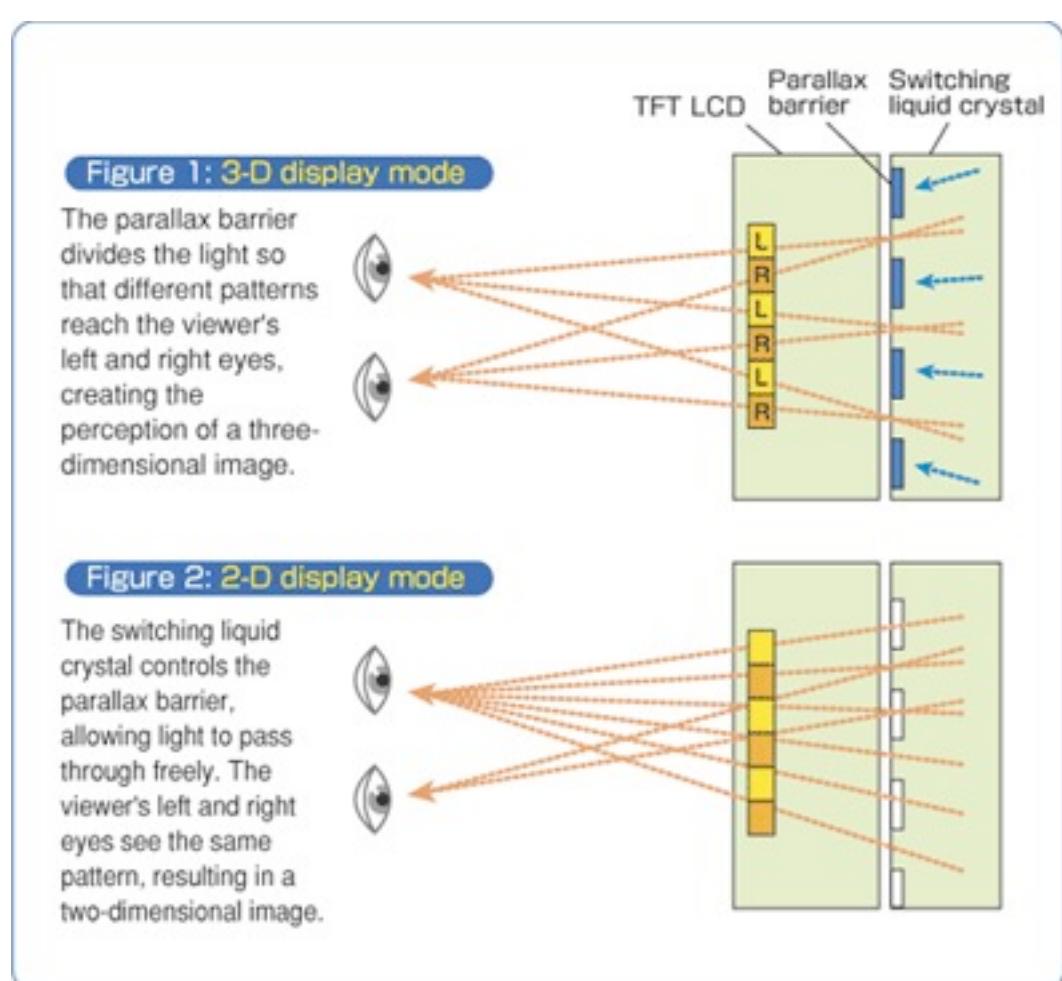
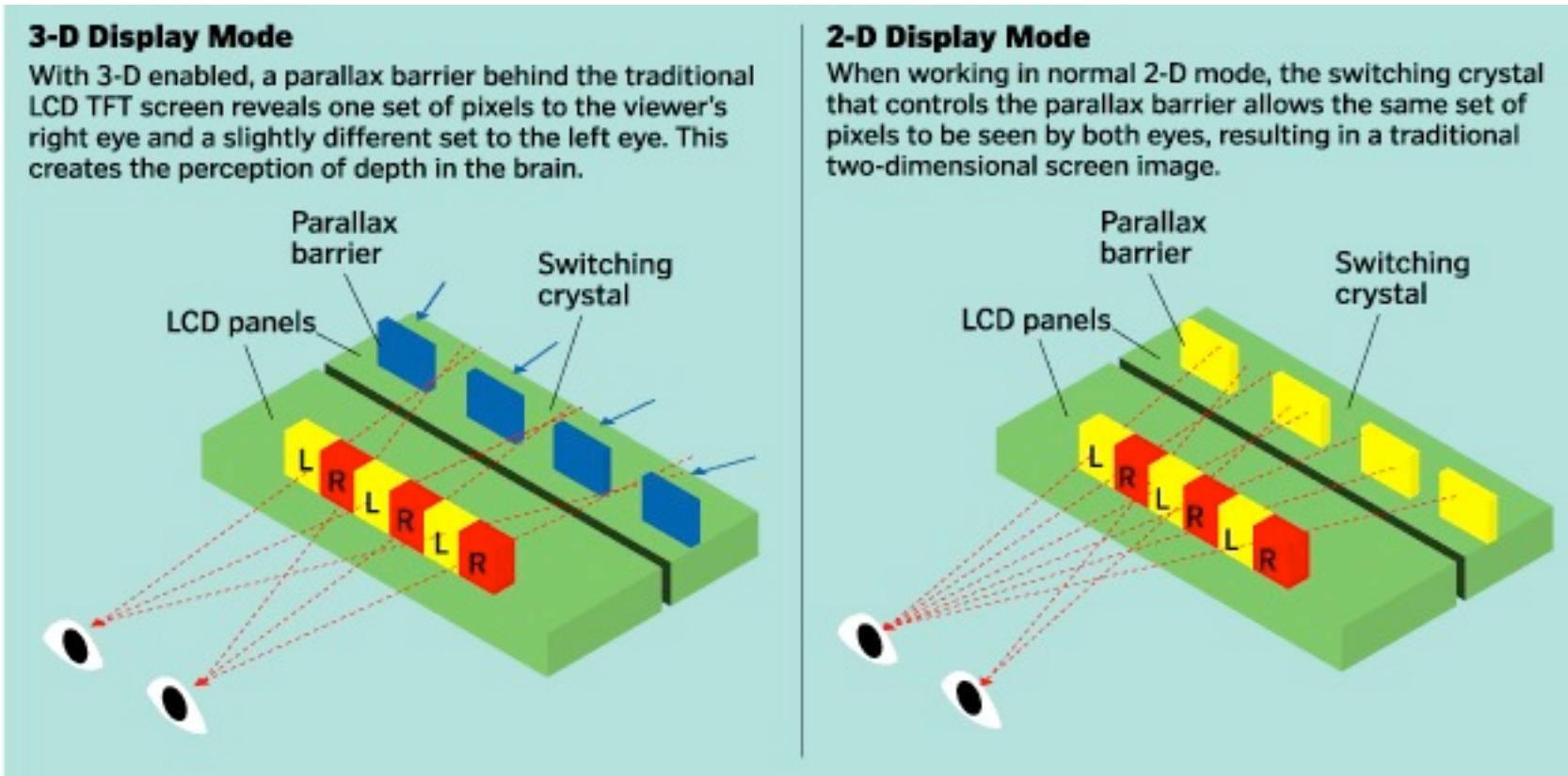


Lentikularstereoskopie

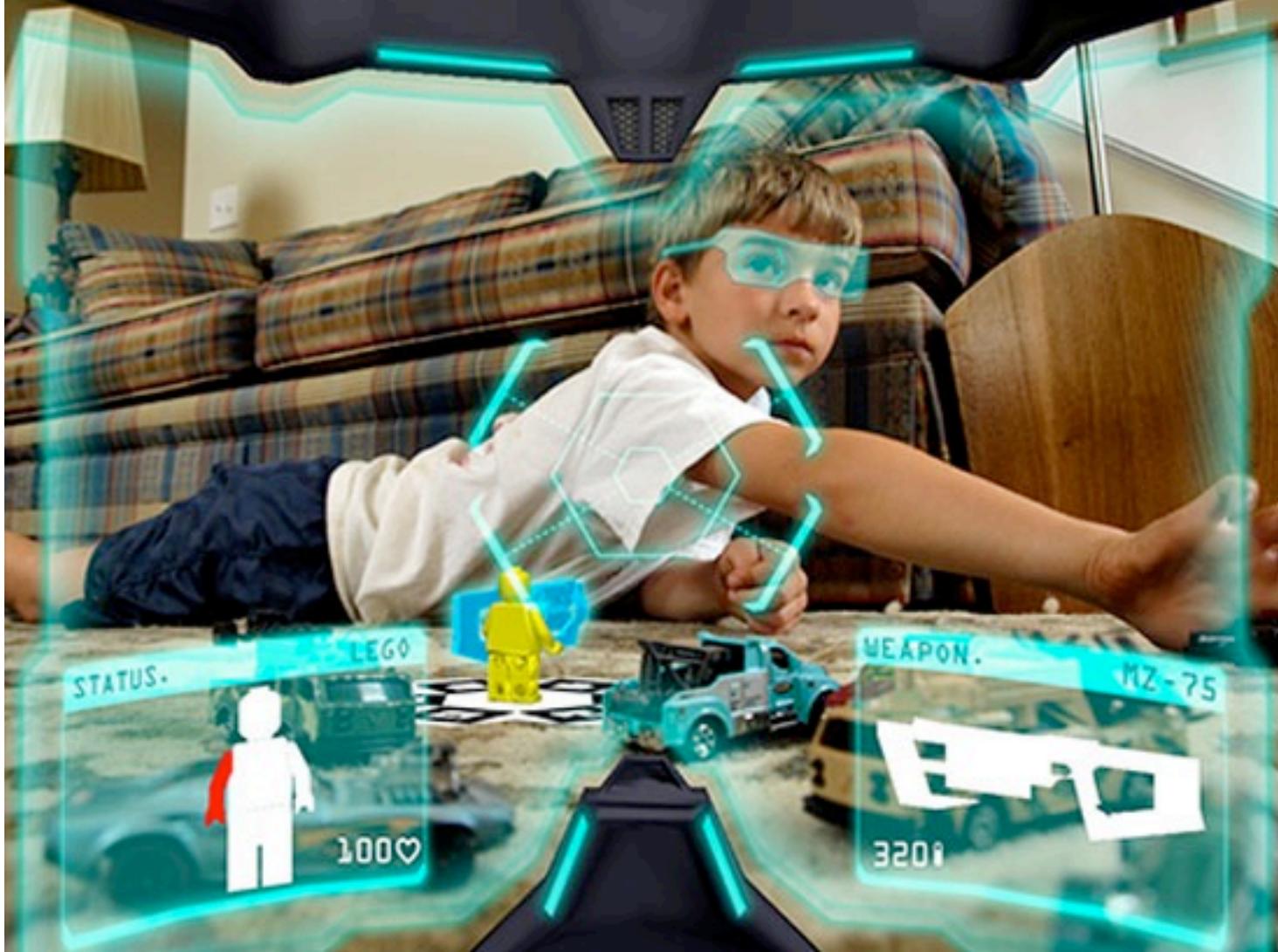
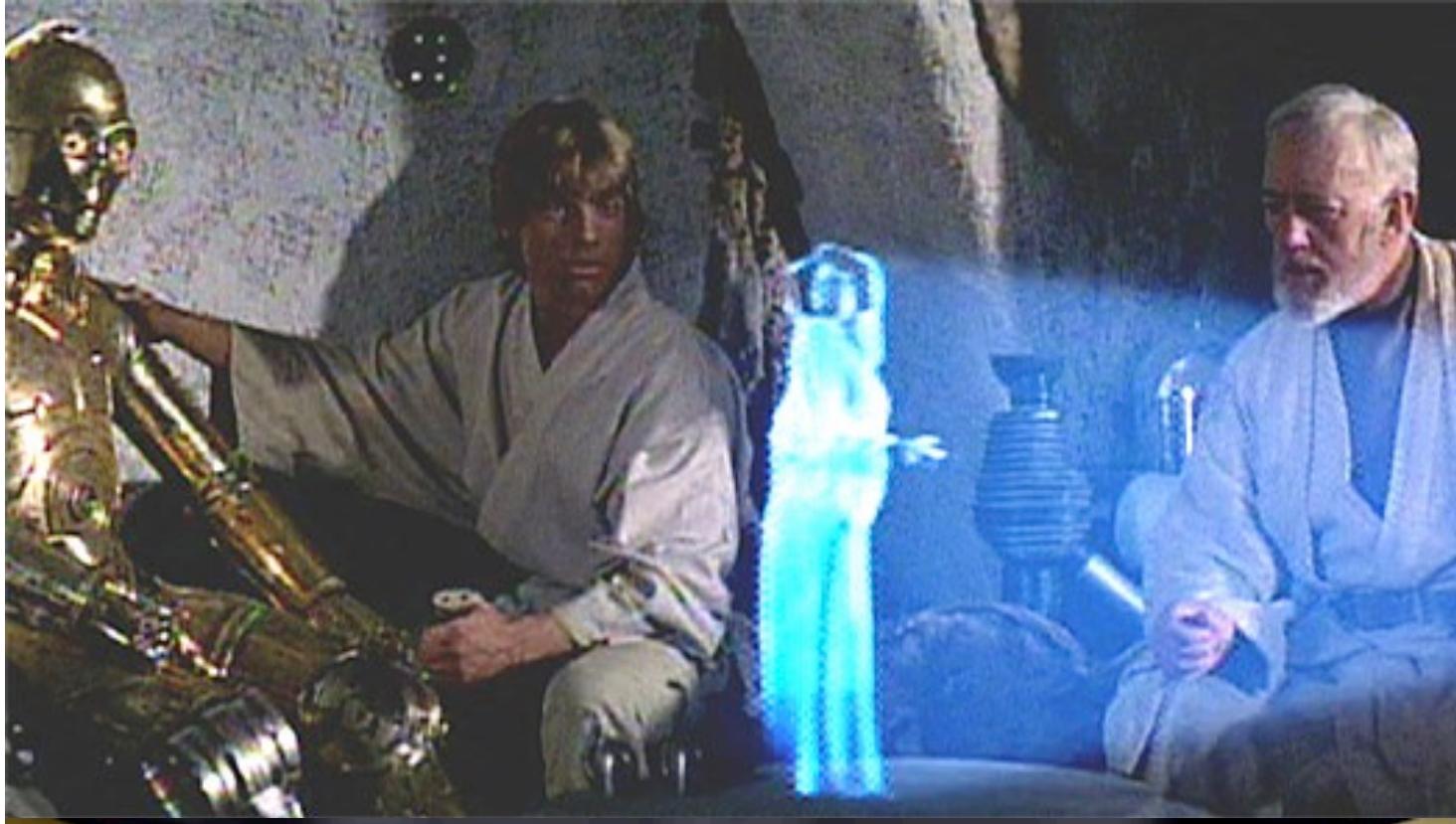
Wackelstereoskopie



Parallax-Barrier







Aussichten

Eingabe

- 3D Tracking Interface
- 2D/3D Konvertierung
- 3D Surveillance

Speicherung

- 3D Kompressionsstandards

Anwendung

- Augmented Reality (Games)
- Computer Generated Hologram (Holodeck)
- Rapid Prototyping
- 3D (Game) Audio

Ausgabe

- Vestibulärinterface
- 3D Printer

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