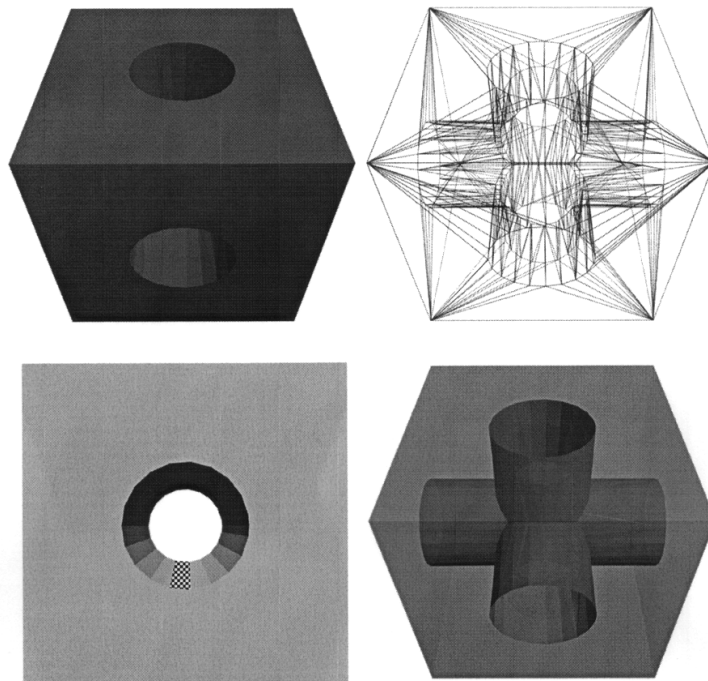


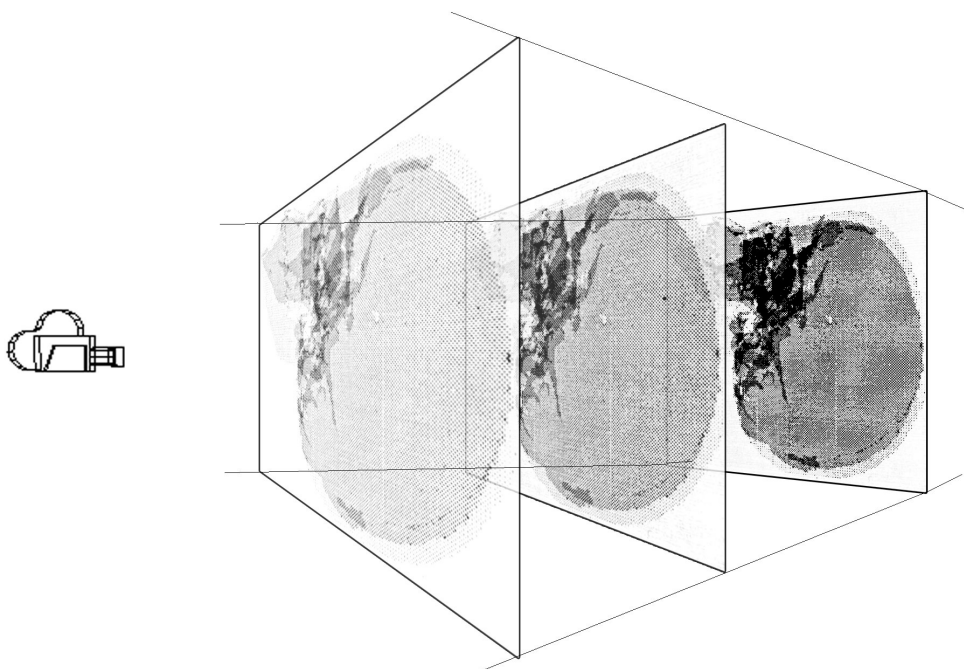
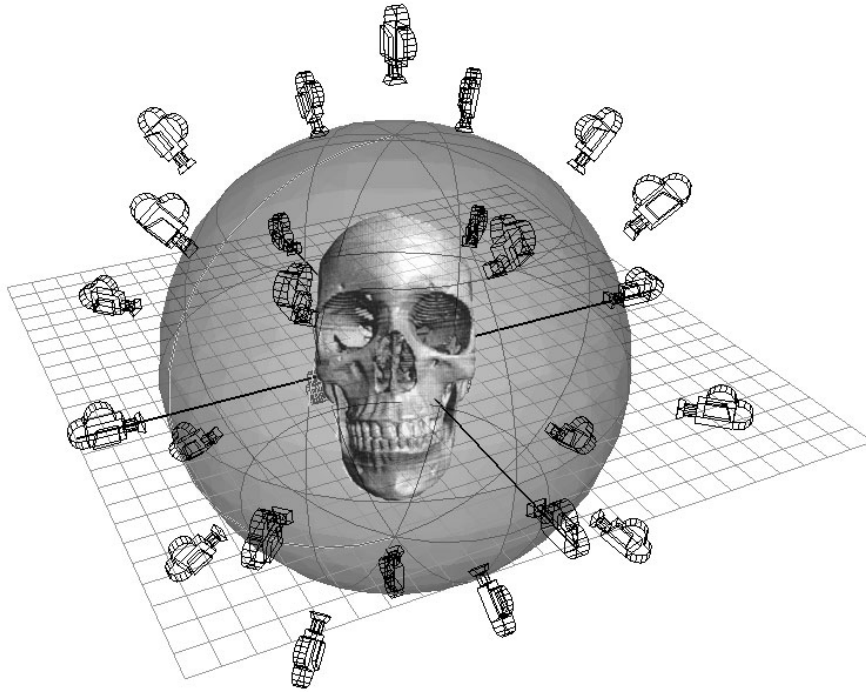
# Solid Modeling

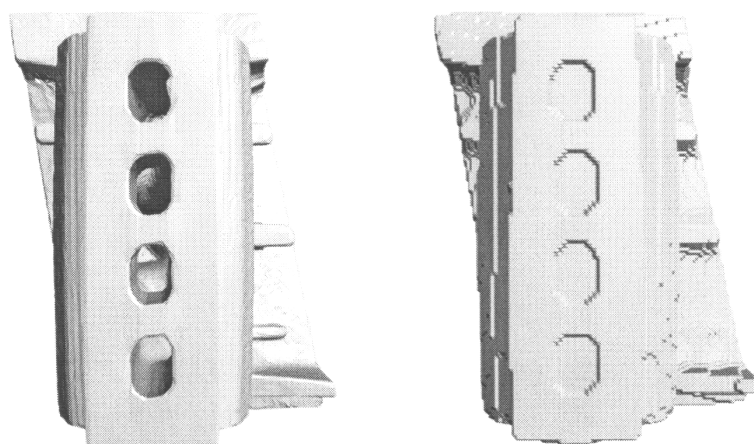
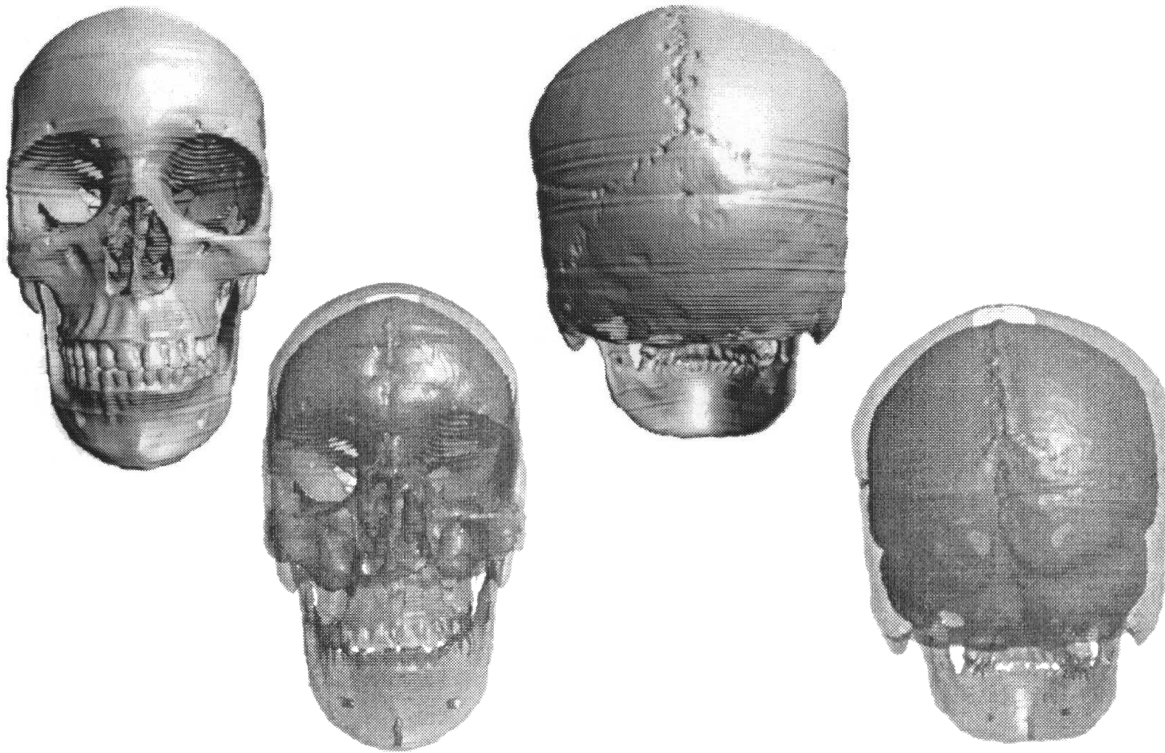
Marc Rochel

Interior/Exterior Classification of Polygonal Models

Solid Modeling



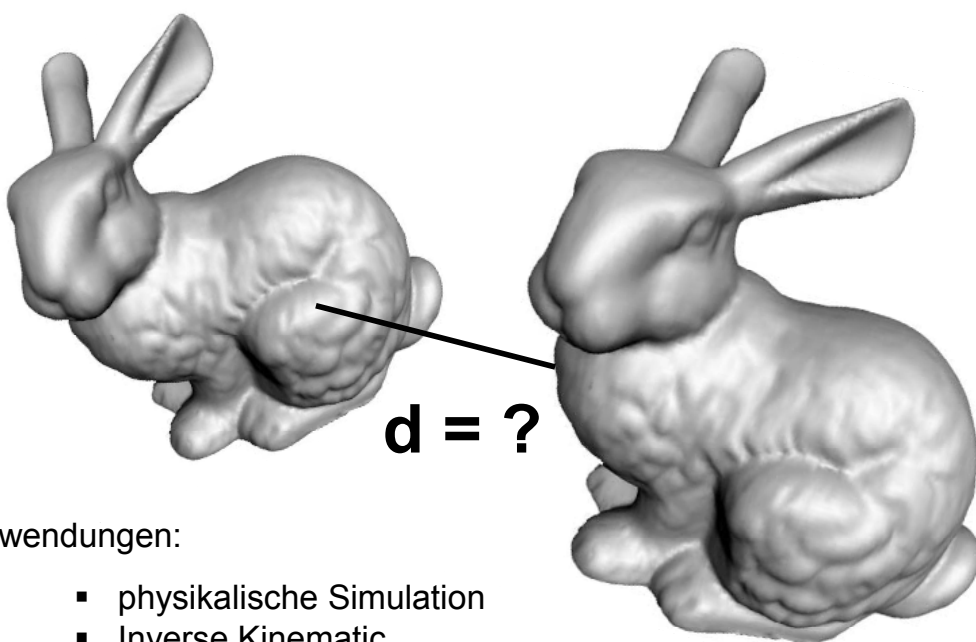
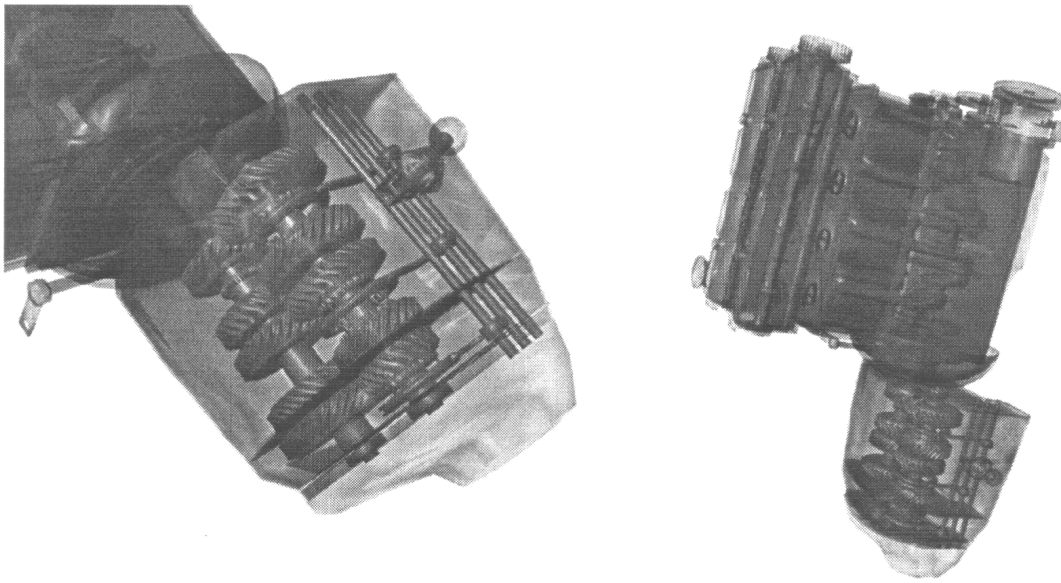




Rastern  
des  
Modells

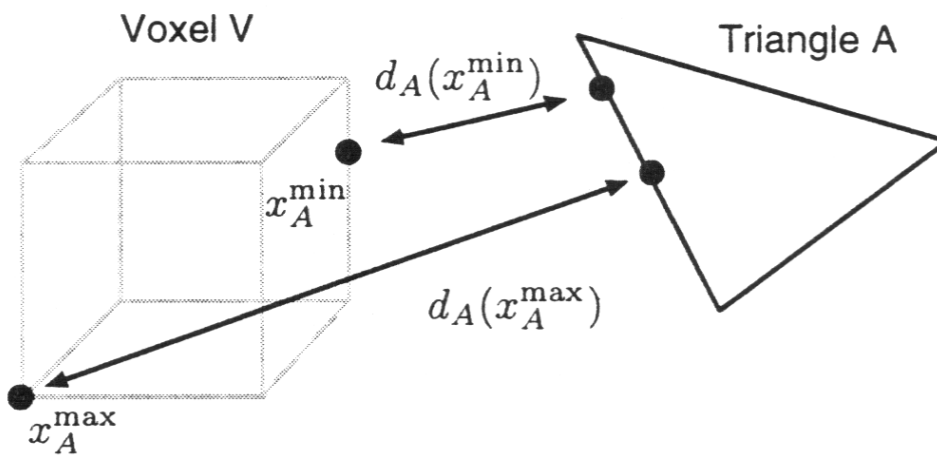
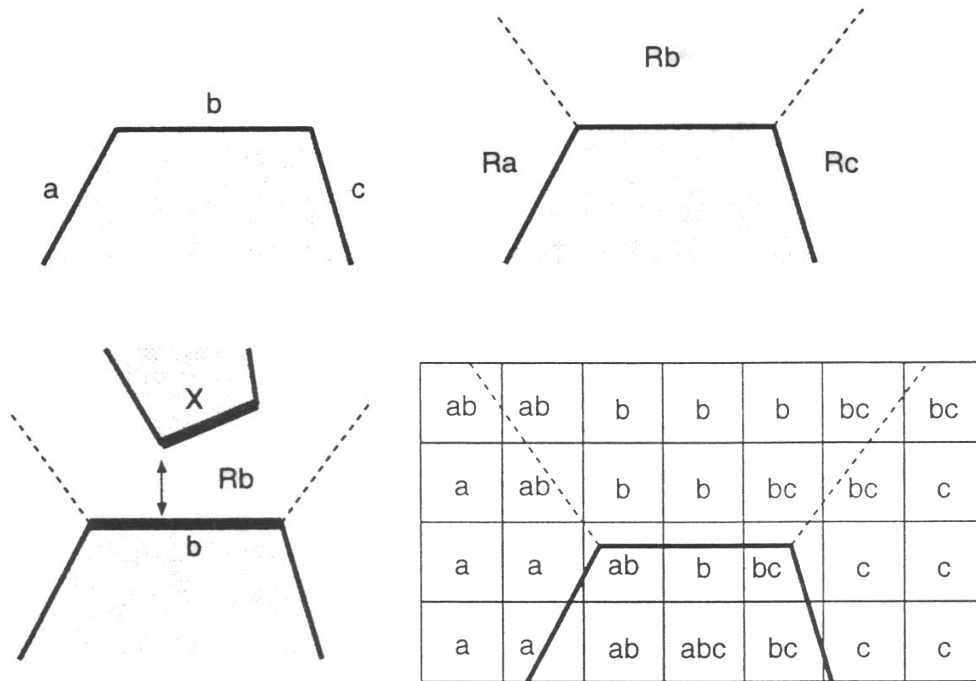
Schließen der Löcher  
durch Dilation, Erosion

Rückgewinnung eines  
Polygonmeshes zur  
Anwendung des  
Verfahrens durch  
Marching Cubes Algorithmus

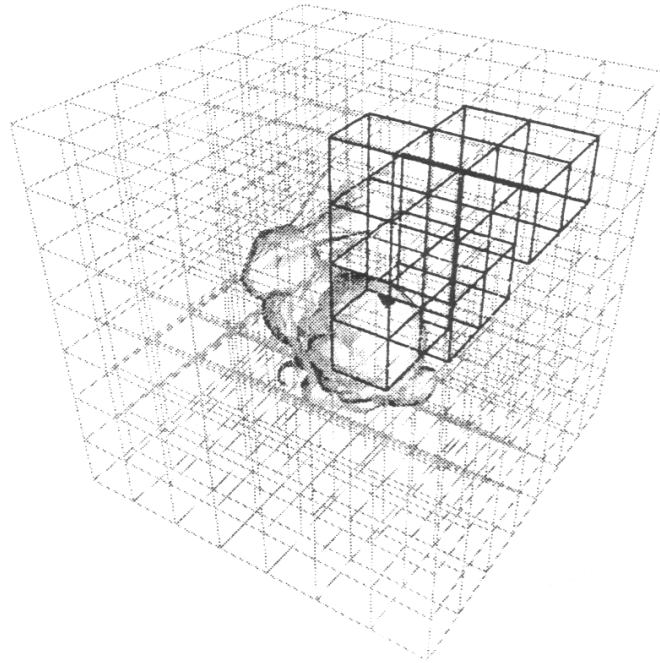


Anwendungen:

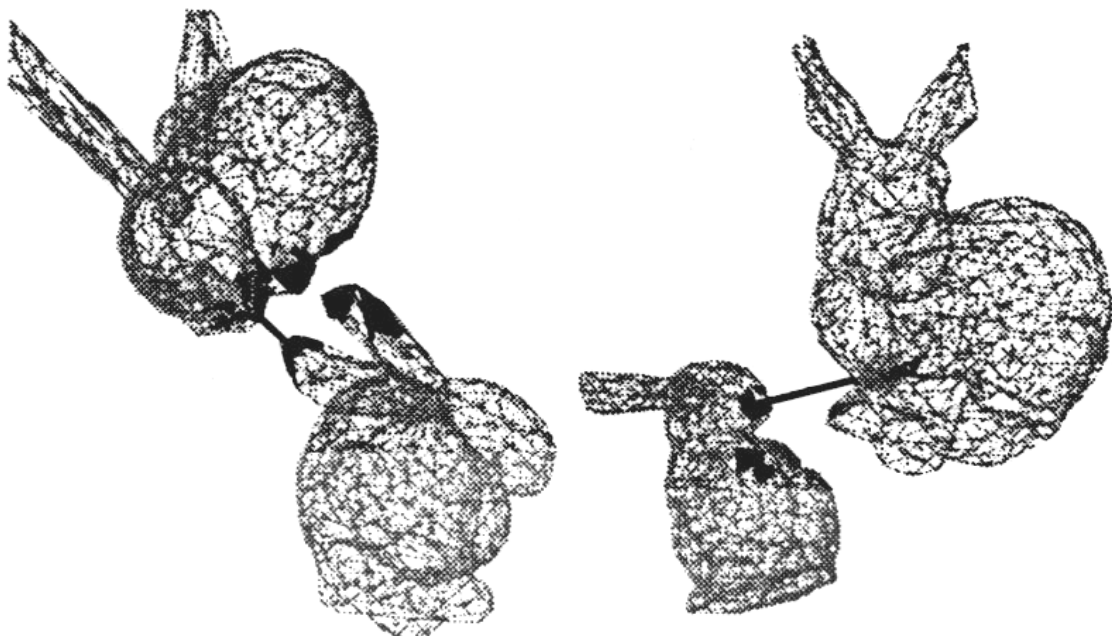
- physikalische Simulation
- Inverse Kinematic
- ...



Berechne Liste der nächsten Dreiecke zu einem Voxel



Zuordnung Dreieck zu Voxels



**Effizienz:**

- $$\frac{\text{Distanzberechnungen CFL}}{\text{Distanzberechnungen zwischen alle Dreiecken}} = \frac{1}{10000}$$
- Vorberechnungszeit der CFLs von 30 x 30 x 30 Voxels = 40 min

- | Algorithmus | Durchschnittliche Berechnungszeit | $N_p$ | $N_v$ |
|-------------|-----------------------------------|-------|-------|
| PQP         | 0.018 s                           | 105.4 | 1781  |
| CFL         | 0.061 s                           | 171.6 | 7970  |