

## Seminarthemen WS 2019/2020

### 1. Quaternionen

- Real-time Rendering Kapitel 3.3
- Animating rotation with quaternion curves (Shoemake)

### 2. Vertex Blending

- Real-time Rendering Kapitel 3.4
- Slashing Through Real-Time Character Animation (Game Developer)

### 3. BRDF Theory

- Real-time Rendering Kapitel 6.3
- Geometric Considerations and Nomenclature for Reflectance (Nicodemus et al.)

### 4. Glossy Effects

- Real-time Rendering Kapitel 6.10.2
- Multi-pass Pipeline rendering: Realism for dynamic environments (Diefenbach et al.)

### 5. Shadow Volumes

- Real-time Rendering Kapitel 6.12.3
- Shadow Algorithms for Computer Graphics (Crow)

### 6. Shadow Map

- Real-time Rendering Kapitel 6.12.4
- Casting Curved Shadows on Curved Surfaces (Williams)

### 7. Surface Angle Silhouetting

- Real-time Rendering Kapitel 7.2.1
- Interactive Technical Illustration (Gooch et al.)

## 8. Procedural Geometry Silhouetting

- Real-time Rendering Kapitel 7.2.2
- Image Precision Silhouette Edges (Raskar et al.)

## 9. Line Rendering

- Real-time Rendering Kapitel 7.4
- Advanced Graphics Programming Techniques using OpenGL course notes (Mc Reynolds et al.)

## 10. Impostors

- Real-time Rendering Kapitel 8.3.4
- Imposters: Adding Clutter (Forsyth)

## 11. BSP Trees

- Real-time Rendering Kapitel 9.1.2
- The Design and Analysis of Spatial Data Analysis (Samet)

## 12. Hierarchical z-Buffering

- Real-time Rendering Kapitel 9.7.5
- Hierarchical z-Buffer Visibility (Greene)

## 13. HOM Algorithm

- Real-time Rendering Kapitel 9.7.6
- Visibility Culling using Hierarchical Occlusion Maps (Zhang et al.)

## 14. Point Rendering

- Real-time Rendering Kapitel 9.10
- The use of points as a Display Primitive (Levoy et al.)

## 15. Bezier Curves

- Real-time Rendering Kapitel 12.1.1

→ Curves and Surfaces for Computer Aided Geometric Design (Farin)

16. Kochanek-Bartels Curves

→ Real-time Rendering Kapitel 12.1.4

→ Interpolating Splines with local tension (Kochanek)

17. N-Patches

→ Real-time Rendering Kapitel 12.2.3

→ Curved PN-Triangles (Vlachos)

18. Implicit Surfaces (Blobby Modelling)

→ Real-time Rendering Kapitel 12.4

→ A Generalization of Algebraic Surface Drawing (Blinn)

19. Catmull-Clark Subdivision

→ Real-time Rendering Kapitel 12.6.4

→ Recursively generated B-Spline Surfaces on arbitrary Topological Measures (Catmull et al.)

20. Oriented Bounding Boxes by Gottschalk

→ Real-time Rendering Kapitel 13.3

→ Collision Queries using oriented Bounding Boxes (Gottschalk)

21. Collision Detection using BSP Trees

→ Real-time Rendering Kapitel 14.2

→ Dynamic Plane Shifting BSP Traversal (Melax)

22. OBB Tree

→ Real-time Rendering Kapitel 14.4

→ OBBTree: A hierarchical structure for Rapid Interference Detection (Gottschalk et al.)

### 23. Front Tracking

- ➔ Real-time Rendering Kapitel 14.7.1
- ➔ Efficient Collision Detection for Interactive 3D Graphics and Virtual Environments (Klosowski)

### 24. GJK Algorithmus

- ➔ Real-time Rendering Kapitel 14.7.3
- ➔ A fast procedure for computing the distance between Complex Objects in Three-dimensional space (Gilbert et al.)