Seminarthemen WS 2019/2020

1. Quaternionen
   - Animating rotation with quaternion curves (Shoemake)

2. Vertex Blending
   - Slashing Through Real-Time Character Animation (Game Developer)

3. BRDF Theory
   - Geometric Considerations and Nomenclature for Reflectance (Nicodemus et al.)

4. Glossy Effects
   - Multi-pass Pipeline rendering: Realism for dynamic environments (Diefenbach et al.)

5. Shadow Volumes
   - Shadow Algorithms for Computer Graphics (Crow)

6. Shadow Map
   - Casting Curved Shadows on Curved Surfaces (Williams)

7. Surface Angle Silhouetting
   - Interactive Technical Illustration (Gooch et al.)

8. Procedural Geometry Silhouetting
   - Image Precision Silhouette Edges (Raskar et al.)

9. Line Rendering
   - Advanced Graphics Programming Techniques using OpenGL course notes (Mc Reynolds et al.)

10. Impostors
11. BSP Trees
   ➔ The Design and Analysis of Spatial Data Analysis (Samet)

12. Hierarchical z-Buffering
   ➔ Hierarchical z-Buffer Visibility (Greene)

13. HOM Algorithm
   ➔ Visibility Culling using Hierarchical Occlusion Maps (Zhang et al.)

14. Point Rendering
   ➔ The use of points as a Display Primitive (Levoy et al.)

15. Bezier Curves
   ➔ Curves and Surfaces for Computer Aided Geometric Design (Farin)

16. Kochanek-Bartels Curves
   ➔ Interpolating Splines with local tension (Kochanek)

17. N-Patches
   ➔ Curved PN-Triangles (Vlachos)

18. Implicit Surfaces (Blobby Modelling)
   ➔ A Generalization of Algebraic Surface Drawing (Blinn)

19. Catmull-Clark Subdivision
   ➔ Recursively generated B-Spline Surfaces on arbitrary Topological Measures (Catmull et al.)

20. Oriented Bounding Boxes by Gottschalk
   ➔ Collision Queries using oriented Bounding Boxes (Gottschalk)
21. Collision Detection using BSP Trees
   ➢ Dynamic Plane Shifting BSP Traversal (Melax)

22. OBB Tree
   ➢ OBBTree: A hierarchical structure for Rapid Interference Detection (Gottschalk et al.)

23. Front Tracking
   ➢ Efficient Collision Detection for Interactive 3D Graphics and Virtual Environments (Klosowski)

24. GJK Algorithmus
   ➢ A fast procedure for computing the distance between Complex Objects in Three-dimensional space (Gilbert et al.)

25. Deffered Shading
   ➢ https://learnopengl.com/Advanced-Lighting/Deferred-Shading

26. GPGPU: Architekturen und APIs
   ➢ Cuda
   ➢ OpenGL

27. Fluidsimulation mit Smoothed Particle Hydrodynamics (SPH)

28. Partikelrendering
   ➢ https://renderman.pixar.com/resources/RenderMan_20/tutorialRenderingParticles.html

29. Berechnung von Optischem Fluss auf GPU
30. Datenstrukturen auf der GPU