Computer Graphics 2 Memory Protocol

- summer semester 2021, oral exam (no portfolio exam!)
- grade: oral exam + bonus points from exercises (over 70%, which were requirement for taking the exam)
- lecturer: Marc Alexa

Topics

- first question: German / English

- second question: With which topic I would like to start ?

- parametric curves

  - what is it, mapping
  - regularity
  - generation
- bezier curves

  - what is it
  - bernstein polynom, properties
  - convex hull
- de casteljau algorithmen

  - Example at whiteboard, control points
  - draw point at 1/2
  - draw (qualitifly) the curve
  - Question: What is the complexity class ? How do calculate the complexity ? ($O(n^2)$)
- tensor product surface

  - what is it
  - we need a regular grid
  - how to apply de casteljau here ?
  - how would I get the normals ?
  - when is it regular ?
- polygon mesh

  - what data structures are there (which include neighborhood information) ?

  - orientability

  - how does it work ? what are we storing

  - how to traverse around a vertex?

  - Question: Why do we store a opposite halfedge on the border ?

  - Cut border algorithmen

    - what is it ?
    - how does it work ?
    - difference between split an union operation
    - operations are deterministic!
    - what are the operations doing ?
- implicit function

  - construct from point cloud

    - how do we do it ?

- normals given, alpha constraints
- using RBF or moving least squares
- moving least squares

  - how do it work ?
  - how does the weighting function looks like ? (compact support)
  - linear equation system: how do we get out ? (polynom coefficient)