Seminar
Advanced Topics in Animation

Matthias Teschner
Contact

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Outline

– Introduction
– Presentation
– Organization
– Topics
Course Information

- Key course
  - Pattern recognition and computer graphics (rasterization)

- Specialization courses
  - Advanced computer graphics (ray tracing)
  - Simulation in computer graphics (e.g., fluids)

- Master project, lab course, Master thesis
  - Simulation track
  - Rendering track
## Seminars / Projects / Theses

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<tr>
<th>Semester</th>
<th>Simulation Track</th>
<th>Rendering Track</th>
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<tr>
<td>Winter</td>
<td>Rasterization Course</td>
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<td>Summer</td>
<td>Lab Course</td>
<td>Ray Tracing Course</td>
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<td></td>
<td>- Simple fluid solver</td>
<td>- Simple ray tracer</td>
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<td>Simulation Seminar</td>
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<td>Winter</td>
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<td>- PPE fluid solver</td>
<td>- Monte Carlo ray tracer</td>
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<td>Rendering Seminar</td>
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<td>Summer</td>
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<td>- Research-oriented topic</td>
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Topics in Graphics

– Animation
  – Rigid objects
  – Deformable objects
  – Fluids
  – Collision handling

– Rendering
  – Ray tracing, volume rendering, rasterization

– Modeling / geometry processing
  – Mesh simplification, surface reconstruction
Topics - Example

- 500 M particles (with FIFTY2 Technology)
Topics - Example

– Automotive Industry (with FIFTY2 Technology)

PreonLab: Drive Through
Goals

– Familiarize yourself with a topic
  – Based on scientific publications
  – Using information from the authors' web pages
  – Using additional sources (internet, books)
– Prepare a comprehensible presentation
– Do not just reproduce the paper
– Adapt the organization and the focus of the paper in order to get a comprehensible presentation
  – You can skip some content
  – You can add content from additional sources
Outline

– Introduction
– Presentation
– Organization
– Topics
Preparation

- Know your topic
  - Examine relevant material thoroughly
  - Do not try to circumvent problems

- Prepare slides
  - Allow 1 to 2 minutes per slide
  - Slides should be uniform and not too dense
  - Incorporate illustrations
  - Slide titles should be helpful
Preparation

- Rehearse your presentation
  - Gather feedback
  - Adapt your presentation accordingly
  - Check your slides with Matthias Teschner one week before your talk
Presentation

– Introduction
  – Introduce yourself, the title of your presentation

– Overview
  – Give an idea, but not too detailed

– Motivation
  – Illustrate the principle and / or applications
  – Explain the goal of your presentation
  – Cite references
  – The audience should be eager to listen your presentation
Presentation

– Main part
  – Should consist of distinguished parts
  – Separate different parts of the presentation explicitly
  – Each part should be introduced and summarized

– Summary
  – Tell the audience what you have told them
  – Ask for questions
Structure of the Presentation

– Title
– Motivation, introduction to the topic
– Information on author, affiliation, source
– Outline of the presentation
– Description of the problem
– Methods to solve the problem
– Results
– Discussion of benefits, drawbacks, problems
– Summary
Presentation - Summary

- Introduce the title and yourself
- Motivate and introduce your topic thoroughly
  - It is essential to arouse the interest of the audience
- Give a brief overview (avoid too many details)
- Structure your presentation
  - Introduce and summarize parts of your presentation
- Summarize the entire presentation
- Clearly mark the end of your presentation
General Comments

- Check the presentation environment prior to the presentation
- Do not occlude the projection
- Avoid idiosyncrasies
- Stay in time
Presentation

– Do not learn your talk by heart
– Do not read your talk
– Do not read slides, but explain every item on your slide
– Do not be shy or quiet
– Communicate self-confidence
Outline

– Introduction
– Presentation
– Organization
– Topics
Requirements

- Presentation of a topic, 30 min, (English or German)
- Discussion (technical aspects, form), 15 min
- Written documentation (English or German)
- Attendance of all presentations is mandatory
- Information on
  [https://cg.informatik.uni-freiburg.de/teaching.htm](https://cg.informatik.uni-freiburg.de/teaching.htm)
- Submission deadline for presentation (PDF) and report (PDF): End of July
Registration

– Obtain the papers from https://cg.informatik.uni-freiburg.de/intern/seminar/
– Check for available topics, papers and dates
– Choose a paper / topic, choose a date
– Send an email to Prof. Teschner teschner@informatik.uni-freiburg.de with your registration request stating name, topic, date
– Do not forget to register the seminar at the online portal / examination office
Goals

- Familiarize yourself with a computer graphics topic
  - Based on scientific publications
  - Using information from the authors' web pages
  - Using additional sources (internet, books)
- Prepare a comprehensible presentation
- Do not just reproduce the paper
- Adapt the organization and the focus of the paper in order to get a comprehensible presentation
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Outline

- Introduction
- Presentation
- Organization
- Topics
Overview

- Fluids (particles or grids)
- Deformable objects
- Rigid objects
- Collision detection
- Contact handling
- Surface reconstruction / tracking
- ...
- All rendering topics
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