Seminar
Advanced Topics in Rendering

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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

<table>
<thead>
<tr>
<th>Semester</th>
<th>Simulation Track</th>
<th>Rendering Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter</td>
<td>Rasterization Course&lt;br&gt;Simulation Course</td>
<td>Rasterization Course</td>
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<tr>
<td>Summer</td>
<td>Lab Course&lt;br&gt;- Simple fluid solver&lt;br&gt;Simulation Seminar</td>
<td>Ray Tracing Course&lt;br&gt;Lab Course&lt;br&gt;- Simple ray tracer</td>
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<td>Winter</td>
<td>Master Project&lt;br&gt;- PPE fluid solver</td>
<td>Master Project&lt;br&gt;- Monte Carlo ray tracer&lt;br&gt;Rendering Seminar</td>
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<tr>
<td>Summer</td>
<td>Master Thesis&lt;br&gt;- Research-oriented topic</td>
<td>Master Thesis&lt;br&gt;- Research-oriented topic</td>
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</tbody>
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Topics in Graphics

- Rendering
  - Ray tracing, volume rendering, rasterization
- Simulation
  - Rigid objects
  - Deformable objects
  - Fluids
  - Collision handling
- Modeling / geometry processing
  - Mesh simplification, surface reconstruction
Topics - Example

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

– Automotive Industry (with FIFTY2 Technology)
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
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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
- Submission deadline for presentation (YourLastName_presentation.pdf) and report (YourLastName_report.pdf): End of February
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
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Overview

- Raytracing
- Radiosity
- Rasterization
- Volume rendering
- Surface reconstruction
- ...
- All animation topics