Introduction
Contact

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- https://cg.informatik.uni-freiburg.de
Outline

- introduction
- presentation
- organization
- topics
Course Information

- key course
  - pattern recognition and computer graphics (rasterization-based rendering)

- specialization courses
  - advanced computer graphics (ray tracing)
  - simulation in computer graphics (e.g., fluids)

- master project, lab course, Master thesis
  - two tracks: simulation, rendering
## Seminars / Projects / Theses in Graphics

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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>Simulation Course</td>
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<td>Summer</td>
<td>Lab Course</td>
<td>Raytracing Course</td>
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<td>- simple fluid solver</td>
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<td>Simulation Seminar</td>
<td>- simple raytracer</td>
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<td>Winter</td>
<td>Master Project</td>
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<td>- PPE fluid solver</td>
<td>- Monte Carlo raytracer</td>
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<td>Rendering Seminar</td>
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<td>Summer</td>
<td>Master Thesis</td>
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<td>- research-oriented topic</td>
<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, image-based rendering, rasterization
- 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
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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

- 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 right at the beginning
- 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
  - e.g. “Thank you for your attention.”
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
- 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
Registration

- obtain the papers from https://cg.informatik.uni-freiburg.de/intern/seminar/
- check the syllabus and the topic list for available papers and dates
- choose a paper / topic
- choose a date
- send an email to Matthias 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
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Example
Overview

- particle-based fluids
- grid-based fluids
- position-based fluids / dynamics
- data structures
- fluid-rigid coupling
- surface reconstruction
- surface tracking
- volume rendering