Computer Graphics DT 3025
Lab 5

Martin Magnusson, November 2015

Lab 5 - Literature survey

The topic of this task is to perform a brief literature survey and write a report on the state of the art in some sub-topic within computer graphics.

1. Select one or two group mates (i.e., the report should be written by 2 or 3 students).
2. Select a topic (you can get inspiration from of my suggestions below, or find something else that interests you).
3. Search for papers. You can use the list in the following section as a starting point. (Starting from one paper, using the "cited by" feature of Google Scholar is very handy!)
    - While going through related papers, narrow your topic down to something more specific. (Conducting a survey on the state of the art in shadow mapping in general would be a very large task, but "techniques for cascaded shadow maps" is more focused.)
    - Other referenecs, such as reliable web sources, are OK too — but always make a critical assessment of the reliability of the source.
4. Find at least 3 references.
5. Send your topic title and list of references to me for feedback. *The deadline for this is December 14.*
6. Write a report, about 10.000 characters incl. spaces (≈3 pages), with the following contents:
    - Problem description: background to the problem and what applications it pertains to.
    - Short motivation of paper selection (why these papers are good/relevant, and how you found them).
    - Describe the papers' approach to the problem.
    - Conclusion.
    - Future work: what part of the problem formulation remains to be solved?

Suggested topics

Below is a list of topic suggestions, together with suggested starting points for your literature search. You are not at all required to use these references, or these topics. This is just for inspiration. You should preferably narrow down your topic to something more specific than the items listed here. (All the references linked to here are available for free from a university IP address.)

1. Browse through some recent SIGGRAPH proceedings and select a topic that interests you.
2. Shadow mapping (dealing with aliasing)
   - Annen et al. (2008)
   - Fernando (2005) (just a 1-page abstract)
   - All the references in the EG'10 course notes...
3. Real-time soft shadows
   - Johnson et al. (2009)
   - realtimeshadows.com
   - EG'10 course notes
4. Real-time refraction
   - GPU Gems 2, Chp 19
   - de Rousiers et al. (2011)
   - Ohbuchi (2003)
5. Interactive global illumination
   - Ritschel et al. (2012)
6. Real-time volumetric clouds
   - Harris et al. (2001)
   - Harris et al. (2003)
   - Hufnagel et al. (2012)
7. Non-realistic rendering
   - Nienhaus and Döllner (2003) (Just a 1-page abstract)
   - Hughes et al., Chp 34 (and its references).
8. Recent developments in lighting models
   - Jakob et al. (2014)
   - Brady et al. (2014)

Examination

For grade 3 it is required that

- the report is well structured and written in clear English, and that the report is complete, following the instructions above (Item 6).

For grade 4 it is also required that the report

- clearly describes the problem statement and what has been done in a way that can be understood by someone who is not an expert in the field,
- in the comparison of the selected references also discusses what sets them apart from previous work,
- critically reflects on what has been learned during the study.

For grade 5 it is also required that the report contains

- a thorough and insightful comparison of the selected references, and what sets them apart from previous work,
- a thorough and insightful conclusion of the problem formulation, based on the selected references.

I understand that it may be difficult to self-assess to what degree your report fulfils these criteria. You are welcome to send a draft version to me before the deadline, and I'll give feedback on what grade it currently matches, and what to be done to reach a higher grade.

Deadlines

- December 14: send topic title and references to Martin. (But the earlier, the better.)
- January 8: submit report to Martin.