ARLAB

ME/CprE/ComS 557

Computer Graphics and Geometric Modeling

Final Project

November 19th, 2015

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OF SCIENCE AND TECHNOLOGY

Goal

Goal of this project is to plan and realize a computer graphics (CG) **application**, which includes the basic CG techniques which were part of this course such as:

- primitive rendering
- light and material simulation
- texturing / multi-texturing / displacement mapping / bump mapping
- navigation
- animation

You should demonstrate that
1. you understand the techniques
2. you are able to use them in an application
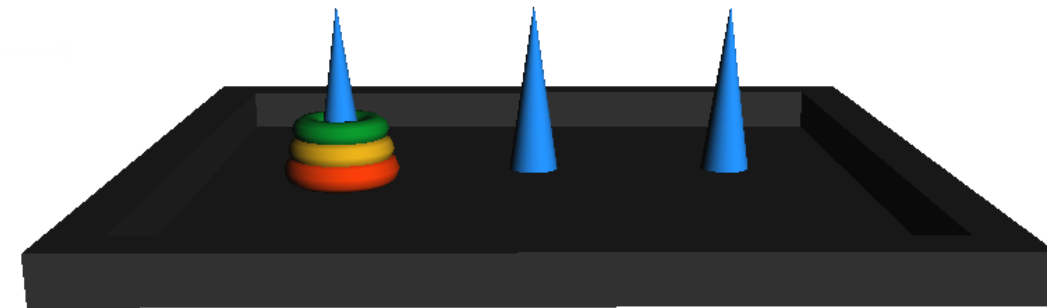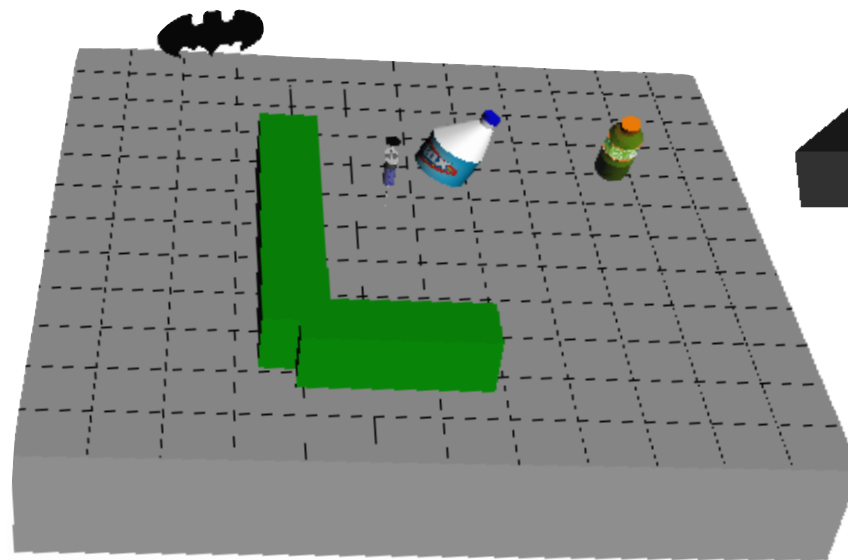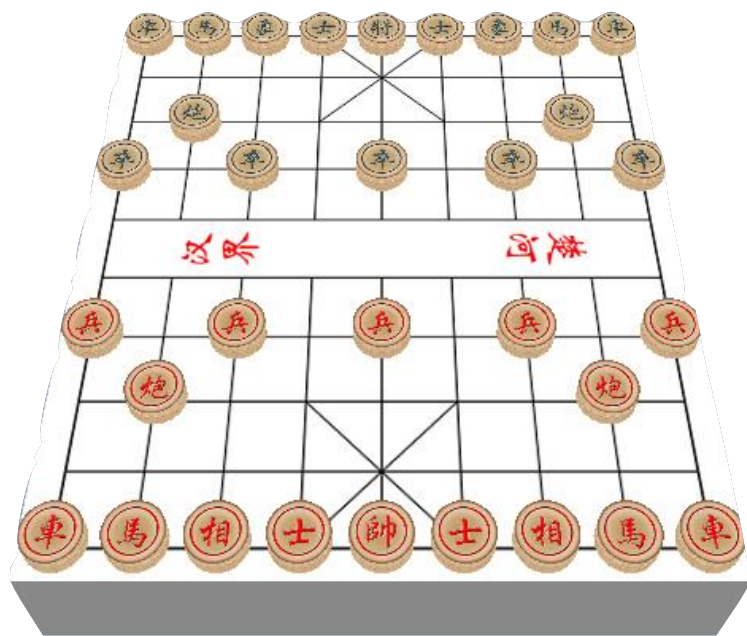
Due date: Friday, Dec. 18, 2015, 8 pm

The project is a team project and must be delivered as team!

Application

Plan and develop an application scenario in your team.

You can do whatever you like to do (no violence).

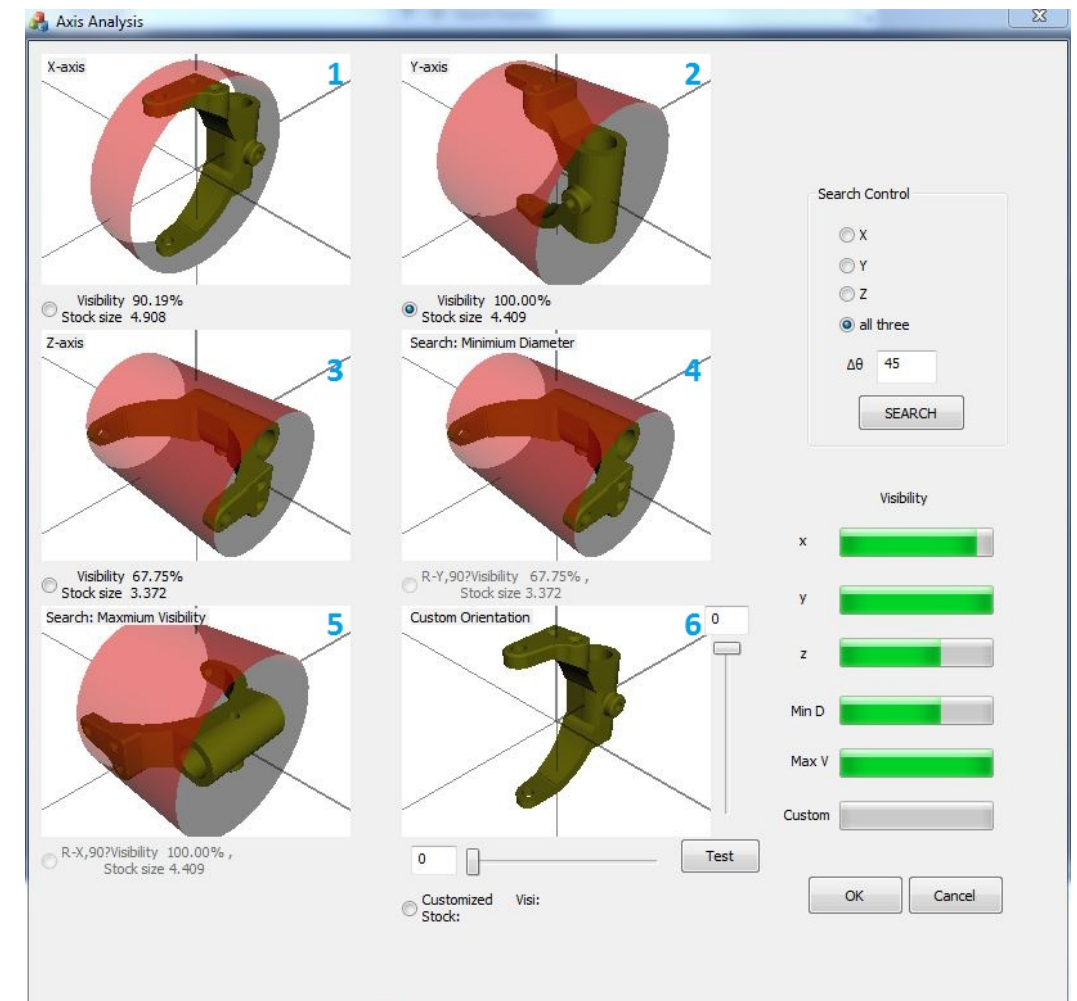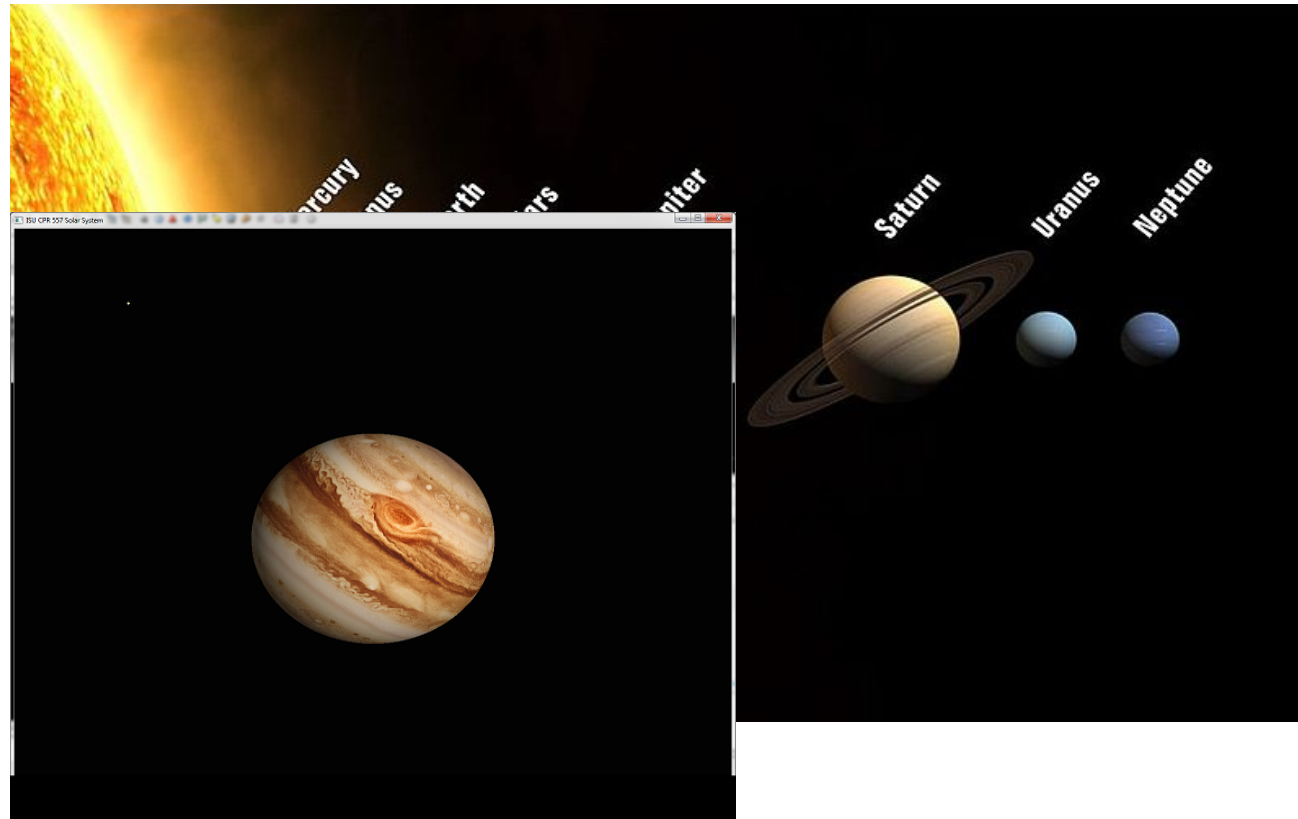Games where popular during the last years.

Note, if you like to work on research applications, etc. you **must** be able to submit the **complete** source code along with all libraries.

The code must run on my computer (Windows or Mac OS X operating system)

Other Applications

Rubric

|	Modeling	Light	Appearance (Material)	Navigation / interaction	Keyframe Animation
1	Single primitive or loaded objects	*0 you need a single light*	Basic specular + diffuse reflect code	Trackball navigation	Single linear transformation
2	Multiple primitives	Combined Spot + direct + point light	Texturing	Navigation in 3D	Animation with rotation and translation
3	Complex object surface	Combined light on surface	Multi-Texturing	Navigation with keyboard + mouse	Triggered (keyboard,etc.) animations
4	Hierarchical model	Combined **colored** light on surface	Environment Mapping	Navigation along a surface	Animation with collision detection
5	Hierarchical model, h>2	Triggered light sources	Bump or Displacement Mapping	Navigation with multiple cameras	Multiple animation paths per object

+ Presentation + team assessment

Notes

Modeling: single primitive, cube, sphere, cone, pyramid, plane, line, point, complex surface, e.g. a vehicle, a curved shape, etc.
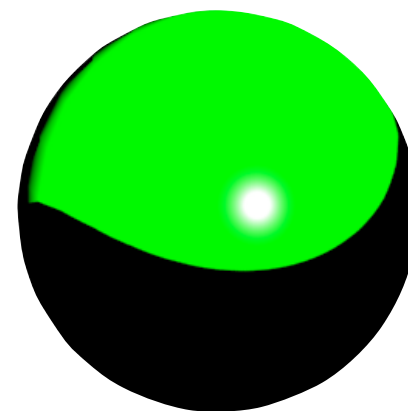
Good **light appearance**: <u>similar to homework 3</u>, no artifacts, light
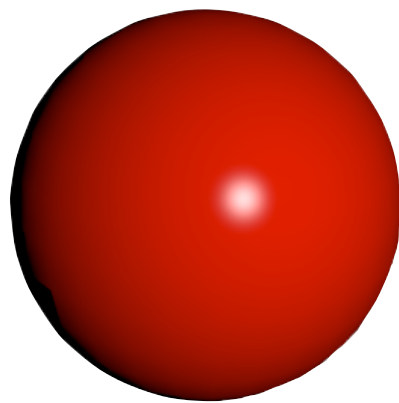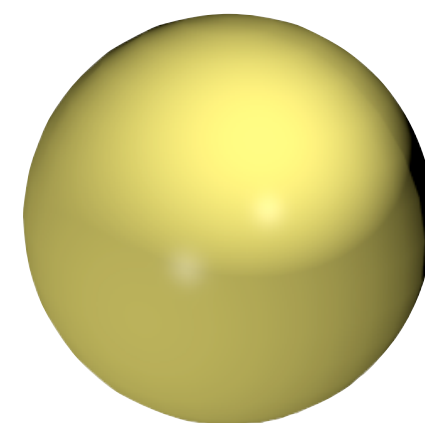

Highlight on
the surface of
a diffuse object
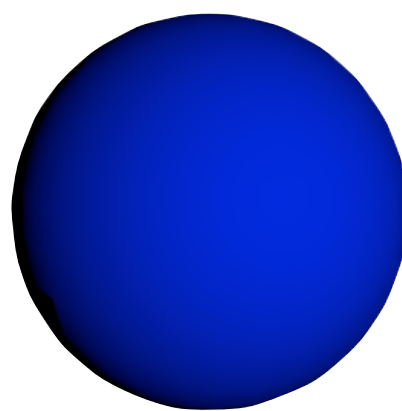
Diffuse surface,
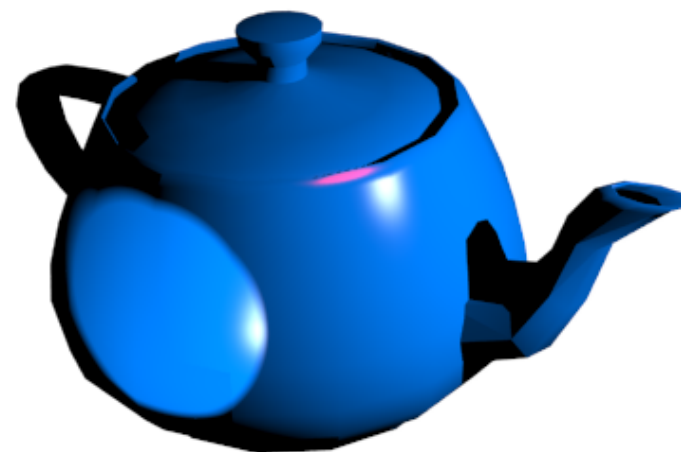no highlights are
visible

Spotlight with
small highlight and
sharp cutoff angle

Little highlight and
smooth cutoff angle

Combined light on surface: multiple lights appear and can be perceived on the surface.

ToDo

1. Assemble teams with 3-4 team members

2. Discuss and agree on an application

3. Send me a short email

    - describing your project (make it short)

    - name all team members

    - **due: Dec. 5th, 2015, 8 pm**

4. Work on your project

5. Prepare a presentation (10 minutes per team)

6. Present in class

7. Evaluate your team members

Deliver:
- Source code and all models

- Presentation

- Team assessment

- Screenshots and/or a video

Presentation

8 (min) -10 minutes presentation per team

- Introduce your team
- Introduce your application, especially the goal of the application. What is the user intend to do.
- Explain the objects in your scene and their behavior
- Explain the user interaction
- Highlight the most sophisticated techniques you used.
- Describe your experience.

Minimum presentation time is 8 min.

Grading

Final project count for 40% of your final grade

Max. 25 points can be collected:

- Max. 15 points from your application
- 4 points presentation
- 6 points team assessment

Presentation:
- Peer assessment (online students should submit videos via Blackboard or Youtube)

Team assessment
- Contribution
- Quality
- Approachable / Team interaction

Thank you!

Questions

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