Visualization and
Interactive Systems Institute

Practical Course
Visual Computing

This course teaches students an advanced level of programming interactive 3D graphics applications. Students will gain experience in implementing hardware-accelerated visualization techniques.

Participation in this course is recommended in preparation for future theses work in computer graphics or visualization. The course will be conducted in English and is targeted at students of MSc Computer Science, MSc Softwaretechnik, and MSc Informatik. The number of participants is limited to 10.

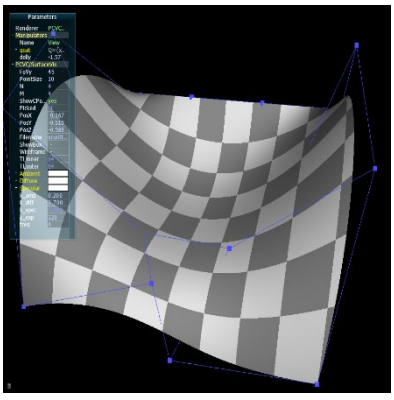
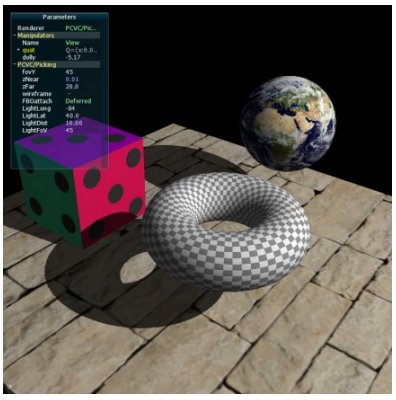
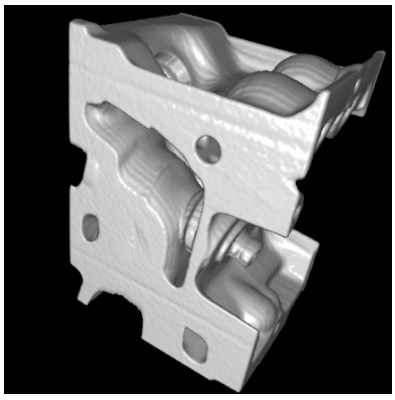
The course is not designed for INFOTECH curriculum.

Contents

Students will work on several tasks during the course, including geometry construction, coordinate transformations, programmable shaders, procedural textures, multiple render targets, color-based picking, direct and indirect volume rendering, Blinn-Phong shading, tessellating, and instancing. After the first four specified assignments, the last assignment is self-defined with focus on graphics and has to be presented at the institute's colloquium. All tasks will be implemented based on a simple framework using C++ and the OpenGL API with GLSL. You should allocate at least **6 to 10 hours per week** to work on assignments.

Prerequisites

Programming skills in **C/C++** are **mandatory** for participating in this course, as well as basic understanding of **OpenGL** and **Linear Algebra**. To this end, you should have at least attended the **Computer Graphics** or **Scientific Visualization** lecture.

For further information, feel free to contact us.
Guido Reina guido.reina@visus.uni-stuttgart.de