



Bachelor projects at Stuttgart University 2008

Supervisor	Friedemann Roessler
Institute/Department	Institute for Visualization and Interactive Systems (VIS)
Mail address	friedemann.roessler@vis.uni-stuttgart.de
Title of thesis	A generic extension concept for a flexible multi-volume visualization application
Research field	Visualization
Description	<p>The combined visualization of multiple intersecting volumes is especially in medical applications a frequent problem, e.g. for the analysis of multi-modality data. At VIS we have developed a rendering tool, which allows the flexible visualization of such multi-volume scenes by manipulating an abstract <i>render graph</i>. Then, the system automatically generates optimized GLSL shader programs from the pre-defined <i>render nodes</i>. Unfortunately, the extension of the tool by new <i>render nodes</i> is still a complex task, demanding a deep examination of the application's source code.</p> <p>In this bachelor project a generic concept for the easy implementation of new <i>render nodes</i> should be developed. The goal is, that a new <i>render node</i> can easily be integrated to the application by providing functionality for rendering, GUI, interaction, etc. in a standardized manner.</p> <p>Possible features are (but not restricted to):</p> <ul style="list-style-type: none">• An easy-to-use plug-in functionality for the integration of <i>render nodes</i>, keeping the effort for the render node developer as low as possible.• Standardized per-node GUI elements for easy interactive <i>render node</i> configuration.• Standardized per-node 3D interaction, e.g. for moving a volume or positioning of a clip plane• Standardized serialization of the <i>render nodes</i> for storing and reconstruction of a render graph.• ...
URL for research information	http://www.vis.uni-stuttgart.de/~roessler
Further comments	Required qualifications: Knowledge in object-oriented programming with C++ and OpenGL. Shader programming with GLSL can be learned during the project.