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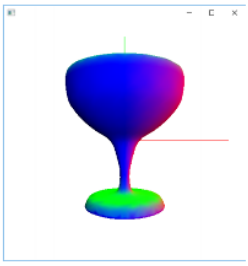
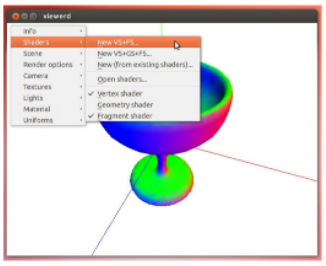
www.virvig.eu
C. Llorens i Artigas 4-6
Edifici U, 1er pis
E- 08028- Barcelona

GL-Socket: A CG Plugin-based Framework for Teaching and Assessment

Andujar, Carlos; Chica, Antoni; Fairen, Marta; Vinacua, Alvar





In this paper we describe a plugin-based C framework for teaching OpenGL and GLSL in introductory Computer Graphics courses. The main strength of the framework architecture is that student assignments are mostly independent and thus can be completed, tested and evaluated in any order. When students complete a task, the plugin interface forces a clear separation of initialization, interaction and drawing code, which in turn facilitates code reusability. Plugin code can access scene, camera, and OpenGL window methods through a simple API. The plugin interface is flexible enough to allow students to complete tasks requiring shader development, object drawing, and multiple rendering passes. Students are provided with sample plugins with basic scene drawing and camera control features. One of the plugins that the students receive contains a shader development framework with self-assessment features. We describe the lessons learned after using the tool for four years in a Computer Graphics course involving more than one hundred Computer Science students per year.

http://dx.doi.org/10.2312/eged.20181003