

Raytracing a Plaxis 3D model

Background

Plaxis 3D is a system for creating, calculating and evaluating 3D models of soil and structures, such as tunnels, dikes and skyscraper foundations. The system consists of an input module (3D modeller), a calculation module (using the Finite Element Method), and an output module (visualisation of results).

Problem definition

In Plaxis 3D, a model can be specified in the input module. Plaxis 3D models can be quite extensive, representing the actual situation on a building site. The model is visualised in the main GUI window using OpenGL. However, for creating fancy publicity shots of a particular project model, the OpenGL visualisation is somewhat limited, for example in terms of the quality of shading. It is desirable that the model can be converted to an input file for a raytracer. In this way, for example, shading and camera positions can be customised, resulting in an attractive image.

Project goals

This internship comprises the implementation of a module that is capable of importing model information from the input module of Plaxis 3D, and converting that information to an input file for a raytracer. The new module must provide facilities to customise the settings for the ray tracer, such as camera position, image resolution, and type of shading.

The implementation must be extensible, and as independent from the current modelling facilities as possible, in order to support future extensions to the modelling facilities.

How to apply

Plaxis bv • Attn: Andrei Chesaru • Delftechpark 53 • P.O. Box 572 • 2600 AN Delft • The Netherlands
Tel +31 (0)15 2517 720 • Fax +31 (0)15 2573 107 • E-mail a.chesaru@plaxis.nl • www.plaxis.nl

