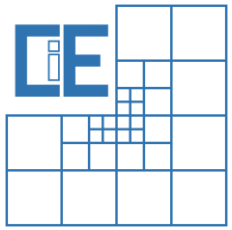

SOFiSTiK

Distributed Visualisation for SOFiSTiK using ParaView

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Problem Description

Project Characteristics

Modeling: ★★★★☆
Mathematics: ★☆☆☆☆
Programming: ★★★★★

- solving structural mechanical problems is an every day's task for engineers in fields of practical applications
- computations of large 3D building models often carried out on dedicated remote compute servers
- fast and efficient deep 3D data exploration of huge simulation results stored remotely is not state of the art at the moment
- project focuses on a distributed 3D visualisation of SOFiSTiK results using an own client-server concept and a self written ParaView frontend
- enable treatment of very huge result files on a server backend, filter and pre-process the data, and send them via sockets to the client frontend for visualising the results using ParaView
- References: http://www.sofistik.com http://www.paraview.org http://www.vtk.org

Tasks

Project Characteristics

Modeling: ★★★★☆
Mathematics: ★☆☆☆☆
Programming: ★★★★★

- analyse and interpret the SOFiSTiK .cdb file in order to extract all relevant geometry and result data files in a fast and efficient way
- write a VTK reader able to parse the .cdb file partially or completely, and store the geometry in an appropriate internal vtk format
- establish a standard interface definition for data transfer from client to server and vice versa
- write a client-server architecture using C++ able to treat and preselect relevant result data, and transmit it via socket communication from server to client using boost libraries, e.g.
- write a ParaView plugin able to interpret and visualise the received data