

Student Project Parallel Rendering Exoplanet Visualization



University of
Zurich^{UZH}



Topic

Recent developments in astronomy made it possible to detect and examine planets and stars outside of our solar system. The current largest exoplanet database contains around 2000 exoplanets and is available to the public. Star visualization systems face many challenges in terms of computer graphics. Systems are limited to certain precision and large scale issues as well as navigation in 3D space. In addition the new measurements and insights into certain specific exoplanets can be addressed with information visualization approaches.

To develop an open scale system for a large video wall or to work with a big amount of data, it is important to use a parallel rendering framework. Distributing rendering and calculation work between computers or graphic cards is an important aspect of this work. The equalizer library makes it possible to use such a system within a visualization project.

Assignment

In this student project, you are going to design and implement a exoplanet visualization system which enables the opportunity to navigate in 3D space and explore the exoplanet database. The outcome of this project is a software prototype visualizing the exoplanet database in 3D as well as other planet related information on our video wall using the parallel rendering cluster. You will learn

how to develop a cross platform software as well as you will get insights into the possibilities of hardware graphic programming with a parallel rendering system.

The prototype will be implemented in C++, OpenGL and QT.

Requirements

Interest in computer graphics and visualization, C++ knowledge, Computer Graphics Lab successfully passed.

Work Load

- 20% theory
- 70% implementation
- 10% testing

Project Type

This project is targeting students who have to do a software project or a thesis project. Goals are adjusted depending on experience and the project type.

Supervision

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