Topic
3D stereoscopic movies and TV are rapidly gaining momentum in the entertainment and advertisement industry, and high-quality consumer 3D display systems are becoming widely available at low cost. Also, the new Google Cardboard initiative further pushes this area.

Using a stereo-video camera, a tour through the IFI and BInzmühle location should be recorded for experimental and promotional use. A previous 3D stereo video recording and display software is available. It can display the stereo video sequence on our stereo projection wall. Extensions of this may include methods for smoothing video sequences to eliminate jittering due to unsteady camera positioning. Furthermore, support of rendering on our auto-stereoscopic LCD monitor or in a Google Cardboard app is desired.

The main goal of the project is the development of a movie-map application, that given a set of recorded 3D stereo movies together with location information allows the user to navigate through the recorded rooms and hallways.

Assignment
In this project, a stereo video sequence should be captured and processed resulting in a smooth walk-through stereo video of our institute. Video real-time capturing and post-processing is done using our Bumblebee 2 stereo video camera and a specialized software.

A stereo-video display application must be implemented for our stereo projector and our multiview-stereoscopic LCD monitor and potentially for a Google Cardboard app that allows movie-like control and display of the recorded walkthrough video. The display application should allow the presentation and navigation through multiple movies.

Furthermore, the simple display application should also be ported to our Equalizer rendering framework for display of the stereo video using passive and active stereo display (on immersive display screens).

Requirements
Cross-platform application development with QT, C++. Basic knowledge of video processing and 3D graphics are beneficial.

Work Load
- 20% theory
- 60% implementation
- 20% testing

Project Type
Based on the scope of the topic and optional tasks, the project can be done as a Bachelor software project, Bachelor or Master thesis or project. Goals are adjusted depending on the project type.

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