The standard processing chain of most Structure-from-Motion (SfM) methods creates a digital 3D model from a given set of images. It does not make assumptions about the camera path or about the given 3D structure. However, if the images have been acquired for the purpose of 3D reconstruction, there is often coarse knowledge about both available. This knowledge can be used to ease the hard challenges of digital 3D reconstruction and to improve results.

The goal of this work is to design and implement a graphical user interface (GUI), which allows to model this prior knowledge efficiently and to provide the necessary tools to include it into given SfM methods. One example is the creation of a coarse camera path, or a coarse outline (e.g. bounding box) of the object that has to be reconstructed. It would also be possible, to provide a set of pre-defined paths and object forms, from which the user can select and modify the version that fits his purpose best.

Keywords: GUI, Structure from Motion, 3D reconstruction

Involved tasks:
– Literature research
– Design and implementation of a GUI to define available prior knowledge

(Recommended) requirements:
– Basic knowledge about photogrammetric computer vision (e.g. attendance in PCV)
– Good programming skills (e.g. C++)

Language: German / English