The devil is in the details:
anatomy of a structure-from-motion pipeline

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Abstract

Computing the structure of a scene and camera motion from a set of unordered images is nowadays considered a "commodity" in research, however there are several catches that makes the difference between a naive approach that works on few controlled examples and a general pipeline able to process casual images. This talk will describe the geometric computation that lies behind a modern structure from motion pipeline. The first part will be devoted to illustrate the basic geometric tools (triangulation, camera orientation, autocalibration, bundle adjustment) while in the second part these pieces will be put together to make up a complete pipeline.

Keywords: 3D reconstruction, Structure and motion, Camera orientation, Image-based modeling