Given a set of multi-view images of a scene, it is possible to estimate 3D scene structure and view positions using structure-from-motion methods. They typically rely on detecting and matching feature points, which can be scarce in modern indoor environments, such as the ones shown above. Instead, a number of line-based methods were proposed in literature. For such approaches finding reliable line matches is a crucial step.

The goal of this thesis is to review existing approaches to line matching, and evaluate their performance on synthetic and real datasets. Synthetic image dataset will be created by rendering CAD models with Blender software. Several available open source implementations of line matching methods will be complemented by own implementations of selected methods found in literature and compared with each other.

Tasks:
- Literature research
- Review of available methods and implementation of selected line matching approaches
- Rendering synthetic images
- Comparative evaluation of line matching methods

Requirements:
- Very good programming skills (e.g. C++)
- Basic understanding of computer vision (e.g. attendance of PCV, DIP or AIA lecture)

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