Chair of Computational Modeling and Simulation
TUM School of Engineering and Design
Technical University of Munich

Using 2D scene graphs to enrich DT with topology

Project Characteristics

Modeling:
Mathematics:
Programming:
Science:

Task

We aim to enrich the result of the Scan-to-BIM with extended topology. To capture topological relations between elements in an indoor environment and represent them in structured models we will …
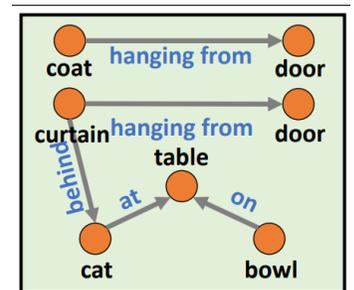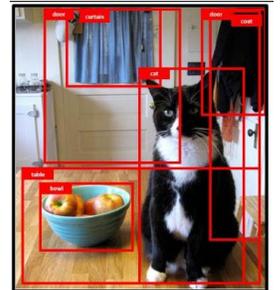
GENERAL INSTRUCTIONS:
- Perform a literature review of common scene graph predictors on images
- Retrain predictor with self-labelled images from TUM Campus with pytorch toolkit [1]
- Use the process of photogrammetric reconstruction to
  - Reconstruct 3D point clouds from images
  - Retrieve the pixel-to-point correspondences
- Generate a 3D geometric graph that includes the scene topology detected in 2D

[1] Tang, K. *et al.* (2020) 'Unbiased Scene Graph Generation from Biased Training', *Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition*, pp. 3713–3722. doi:10.1109/CVPR42600.2020.00377.

Point cloud missing points between ceiling and lamps

Scene Graph generation by Tang *et al.*, 2020