

# Literature Review of Semantic Scene Reconstruction and Completion

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Our target is to reconstruct indoor scenes with accurate geometric structures and semantic labels given RGB-D videos. In addition, we seek to complete the scenes, such that the holes upon the surfaces will be filled at the level of objects. The scenes will remain geometrically completed, even if object instances such as tables and vases are removed.

Such reconstructed scenes are fully functional for interaction and simulation, hence will be beneficial for research and industry.

The ultimate task can be disassembled into several sub-tasks, including object detection, geometric reconstruction, and 3D completion or inpainting. There have been several studies that combine several of them, but as far as we concern there is no work that has involved all the aspects.

## 1 Related Work

### 1.1 Object Detection

2D: [?] 3D: [?]

### 1.2 Semantic Scene Reconstruction

[?]

### 1.3 Scene Completion

Learning based 3D: [?] 2D: [?, ?]