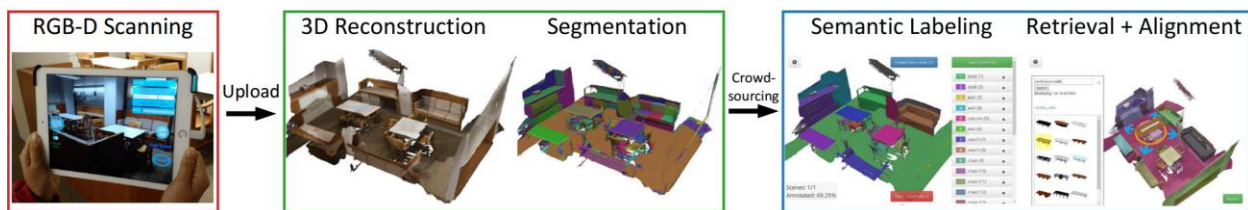


Master Thesis in Visual Computing: *Crowd Sourcing Large-scale 3D Dataset Annotations for Deep Learning*

The goal of this thesis is to develop a web-based annotation framework for dense 3D reconstructions captured with commodity sensors such as the Microsoft Kinect. The main idea is to use the labeled data for data-hungry deep learning methods, where the key challenge is the availability of large annotated datasets that serve the underlying learning task. In the context of this thesis, the focus is specifically on providing dense class annotations on 3D scans, as well as well as overlaying high-quality 3D CAD models on top of the scanned geometry. A common strategy to obtain these labels is by using the crowd sourcing platform Amazon Mechanical Turk; this introduces the requirement that the application needs to run in a browser probably with a JavaScript/WebGL-based rendering and interaction platform. Finally, we want to verify the obtained dataset with a simple deep neural network architecture.



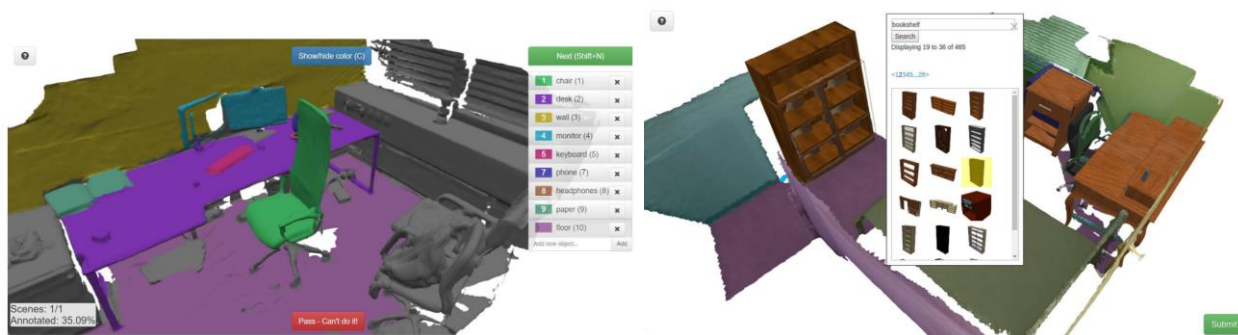
[Dai et al. 17] ScanNet Annotation Tool

Milestones:

- 1) WebGL rendering of 3D scenes
- 2) Annotation of dense class labels using Amazon Mechanical Turk
- 3) Modeling and aligning of 3D CAD models on top of the input 3D scan
- 4) Optional: simple deep learning test benchmark

Pre-requisites: Web-programming (potentially, WebGL), JavaScript, graphics and vision background, highly self-motivated ☺

References: ScanNet <http://www.scan-net.org/>



[Dai et al. 17] Annotation with Segment Labels and Model Alignments

If you are interested, please contact Matthias Niessner (matthias.niessner@tum.de).